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VOL. XV, NO. 12 WASHINGTON DECEMBER, 1904

THE NATIONAL GEOGRAPHIC MAGAZINE

CHINA*

BY HON. JOHN W. FOSTER

AUTHOR OF "AMERICAN DIPLOMACY IN THE ORIENT," "A CENTURY OF AMERICAN DIPLOMACY," ETC.

A BRITISH Cabinet Minister, in discussing the condition of China in the House of Commons about the time of the Boxer troubles, used the following language:

"History is full of accounts of the weakness and decay of great empires, but I do not think that history shows a single case in which an empire numbering its inhabitants by hundreds of millions, which has never received any blow directed against a vital part, whose inhabitants have many of the qualities which go to make up a great nation, being thrifty, industrious, enterprising, courageous—I do not think that history shows a single case where an empire of that kind had been apparently unable to act against the feeblest form of attack."

A study of this anomaly of history is a task too vast for a single lecture, and in which I can only touch the surface of the subject. At the outset it presents several interesting and distinctive characteristics. China is the most ancient of all the nations of the past or the present. It is the most numerous people ever gathered under a single government. It is the most homogeneous and durable race of all time. If we combine literature, philosophy, science, invention, the arts and industries, it will probably stand in the lead of all the nations. That such a people and government have reached the condition of apparently utter helplessness described by the British statesman is the marvel of the day, and challenges the attention of the student of history and politics.

In any consideration of the Chinese people, the fact which seems most strongly to impress us is its great antiquity. Fable and tradition carry the origin of the race and the foundation of the government far beyond our credibility, but stable history begins at a period anterior to the pyramids of Egypt, the earliest existing monuments of social order. The reign of the Emperor Yaou, the model monarch, who brought to the nation of antiquity its golden age, dates back of the Christian era twenty-three centuries; and from that time there is an almost unbroken historical record of

*An address before the National Geographic Society, November 25, 1904.

succeeding dynasties to the present day. The period embraced in that record covers the existence of all the great reigns of Egypt from the fourth dynasty onward to their close. It includes the rise and fall of the Chaldean, Assyrian, Babylonian, Persian, and Alexandrian empires of western Asia. Compared with it, the record of Greece and Rome is modern history, and the annals of the nations of Western Europe are but the events of yesterday.

It is not to be understood, however, that this national history of more than forty centuries is an unbroken record of prosperity and governmental order. There has been the same experience which marked the lot of the people of Egypt, of western Asia, of Greece, Rome, and modern Europe—wars, civil and foreign; rebellions and conquests; change of rulers and dynasties; periods of disorder, anarchy, corruption, and decay; famine, pestilence, financial ruin and industrial distress; religious persecution and social unrest; prosperity and depression; the golden era of literature and the dark ages of learning. But while all the other nations of the earth have fallen and ceased to exist because of these varied assaults, the Chinese Empire entered upon the nineteenth century stronger, more expansive, and more populous than ever before in its history.

Next to its antiquity, that which most impresses us is its enormous population. No other government of ancient or modern times has embraced so many people, and these in contiguous territory and ruled by the same system of laws and polity. The nearest approach in this respect is the British Empire; but its territory is scattered over the face of the globe and its system of laws is as varied as its possessions.

But this great population has been a slow growth. Even in its recorded history it goes back to a period of contracted territory and a comparatively feeble people. But it has shown a marvelous power of assimilation. The Chinese race, as it brought under its sway the adjoining peoples, absorbed them by commingling their blood and engrafting on them their language and customs. Not even the foreign conqueror appears to have had the slightest influence on their racial characteristics and very little on the government. In modern times they have been twice completely subjugated—by the great warrior Genghis Khan in the thirteenth century and by the Manchus in the seventeenth century—but in each instance the population experienced no essential change; the language, government, religion, and customs continued as before; the conquerors were absorbed by the conquered.

While it is the most numerous population under one government, it is also the most homogeneous. Throughout its whole extent there is but one written or printed language; the religious practices, the social ethics, the literature, and the system of education are the same. In these respects it is in marked contrast with India—a country of mixed races, languages, and religions. As a consequence, while China has had a continuous existence as a nation and has enjoyed more fully than most nations the blessings of peace, the history of India has been one of almost continual turmoil, alternately rent asunder by the rivalry of domestic rulers and laid waste by invading armies, until it fell an easy prey to Great Britain, whose firm but beneficent rule has given it, for the first time in its history, the blessings of peace and good government.

This homogeneity of the Chinese has contributed largely to the permanency of the nation; but another characteristic must be noted in this connection—the durability of the race. It has been said that of all the peoples mentioned in ancient history, only the Jews and Chinese remain; but the Jews have long ago lost

their country, their nationality, and their language, while all of these remain to the Chinese. We search in vain today in Egypt for a specimen of the great race which built the pyramids, carved the monuments of Karnak, and created its wondrous civilization. The races which made Assyria, Phœnicia, and Greece so famous and powerful have long since disappeared. The Roman of the republic became transformed during the empire and was completely extinguished in the Vandal invasion. The Anglo-Saxon of today is far from the Briton as found by Cæsar, and even quite different from the islander in the time of William the Conqueror. While in all other parts of the globe these transformations in human society have taken place, the imperturbable Chinese has continued unchanged from generation to generation, from dynasty to dynasty, so far as we can judge from his history and literature.

When we turn to the intellectual and material accomplishments of this people we find an equal cause for marvel and admiration. Centuries before Homer and long before the golden age of Pericles there existed a learning and literature which attest a high stage of intellectual attainment. From the earliest antiquity the taste for learning was developed, and, in contrast with other lands, it has continued a distinguishing characteristic uninterruptedly through all its history to the present day.

In the realm of philosophy and ethics it challenges a comparison with the best models of ancient or modern times. The teachings of Lautsz, Confucius, and Mencius are worthy to rank with those of their Western contemporaries, Socrates and Plato. The code of Confucius is without a parallel in its influence on the human race. Produced five centuries before the birth of Christ, it was the condensed teaching and wisdom of the Chinese writers anterior to that era, and for more than 2,000 years it has controlled the conduct of one-third of the inhabitants of the earth. Competent critics state that in its moral aspects it compares favorably with the precepts of the Greek and Roman sages, and in the influence which it has exerted over so many millions of minds it is incomparably superior; and in this view it is invested with an interest which no book besides the Bible can claim.

The Chinese are often said to be an imitative people, but it is a remarkable fact that some of the most useful, if not the most useful, inventions of the human race have had their origin in China. The art of printing was first practiced there, and a thousand years before Gutenberg was born books in large numbers were being produced by that process, and long before paper was known in Europe it was used in bookmaking in China. The mariner's compass, the forerunner of steam and electricity, which made possible the discovery of the new world and the intercommunication of all lands, the foundation of modern commerce, was used in China many centuries before it became known to the West, and the properties of the magnetic needle were mentioned by Chinese writers 2,000 years anterior. Gunpowder, which revolutionized all military science and is such a potent factor in the world's affairs, was first compounded by that people. Porcelain and silk manufacture reached a high grade of perfection early in Chinese history, and these, with its language, literature, and philosophy, were imparted to Korea, Japan, and other neighboring countries.

The Great Wall, traversing high mountains and large rivers, built two hundred years before the Christian era, still stands as the most extensive monument of antiquity to attest the high engineering skill and kingly energy of that day.

Of similar herculean proportions, but of a later origin and for a more useful

purpose, is the Grand Canal, which at one period stretched from its capital, Pekin, to its commercial metropolis, Canton, reaching through the entire extent of its most populous territory. Today, because the modern improvements in hydraulics have not been availed of and steam navigation is a successful competitor, this great work has fallen much into disuse, but up to the date of its construction it was the greatest public commercial work ever undertaken, and its completion and maintenance for many centuries are a striking evidence of the skill and enterprise of this people.

It adds greatly to the merit of the race for these attainments in literature, philosophy, invention, the arts and industries, when it is remembered that for the greater part of its existence as a nation it has maintained a complete isolation from the outside world, shut up by the ocean, the mountains, the deserts, and their own exclusiveness, and that these achievements in human progress were evolved from within the nation itself.

We look upon China, and justly so, as perversely conservative and strangely wedded to the past; but such has not always been its history. Up to a thousand years ago (and it then looked back upon a written history of three thousand years) it could truly claim to be the most progressive nation of the world. It has passed through great changes and wrought some beneficent reforms. The monarchy, first elective, has become centralized and hereditary. The feudal system grew into an intrenched institution, and about 200 B. C. its abuses caused a terrible struggle which resulted in its complete overthrow. Two thousand years ago the educational competitive system for office-holding was inaugurated, and this brought into politics a democratic element which practically abolished the hereditary nobility. A marked change occurred in the religious views of the Chinese early in the Christian era by the introduction of Buddhism from India. These facts show that profound changes have been experienced in the nation, and that the race has accepted them without seriously affecting its virility or homogeneity.

Why is it, then, that we see such helplessness, such utter incapacity to meet the emergencies which compass this nation of unparalleled attainments in the past—this homogeneous, indestructible, and multitudinous people? Its causes are not far to seek. They may be briefly generalized as, first, blind conservatism, and, second, the low grade of public and social morality. The record, which I have so hurriedly summarized, of national achievement has made the ruling classes intensely proud of their country and their race. Theirs is the Middle Kingdom, and all the other nations of the earth have been regarded as mere outlying provinces or dependencies. Well into the nineteenth century all embassies from foreign nations which sought intercourse with its rulers were treated as belonging to suzerain states. Their government was to them the perfection of many centuries of experience. Their learning was the concentrated wisdom of the greatest sages and scholars of past ages. They needed no commercial intercourse with the outside world, for had they not grown to be the most numerous and most contented of all peoples by a policy of non-intercourse? While they believed in the arts of peace and depreciated the soldier, by their military system the empire had withstood the assaults of its enemies and was apparently impregnable.

This confidence in their military strength was greatly shaken by the British and French wars in the middle half of the present century, and some pretense of organizing an army and navy was undertaken. About the time that Japan entered so energetically upon a

radical reorganization of its system on the western model, some steps were reluctantly taken under foreign pressure by the Chinese to bring themselves into contact with other nations by the establishment of embassies and the opening of a limited number of ports to trade. But all this was grudgingly done, and no serious effort was made to bring the country out of its seclusion and give it the benefit of the western improvements in military, commercial, and educational affairs. When the war with Japan came in 1894, China was shown to be a great helpless giant, without bone or muscle; a vast mass of people having no competent rulers or leaders; and they fell an easy prey to the well-armed and well-drilled Japanese troops. They are not without patriotism or courage, but both were useless fighting with mediæval weapons and tactics against such foes.

To this conservatism and conceit is to be added a widespread and generally prevailing evil system in official life. In theory the offices are given as the result of a competitive examination, but in times past the necessities of the government have led the rulers to dispose of them for money, and there grew up a practice of bribery which pervaded all departments, affected the collection and disbursement of the revenues, and entered into public contracts and the administration of justice. I would not speak so disparagingly of a people for whom I entertain a high respect were it not that this condition is admitted by the country's rulers themselves, who of late have been seeking to reform the abuses. The Empress Dowager in a recent edict recognized the spirit of corruption which pervaded official life, appealed to the patriotism of her subjects for reform, and threatened severe punishment upon those who persisted in their evil ways.

This state of affairs emphasizes the low grade of public and social morality. I have referred in terms of commendation to the influence of the Confucian philosophy. It is, however, purely a code of ethics, and makes no claim to religious instruction. To it must be attributed, more than any other influence, the hurtful conservatism of the Chinese, for it was based upon the wisdom of the past ages and taught unreserved obedience to the living father and veneration for ancestors, out of which has grown a kind of ceremonial worship and reverence for the past, which with many of the literary class takes the place of religion. Buddhism has been the prevailing religion of the masses for near two thousand years, but with it is joined a worship of demons and spirits of the most degrading and superstitious character. Their agnostic philosophy, their Buddhism without a personal deity, their blind superstition, have left this great people apparently unresponsive to the appeals of patriotism, to the demand for the purification of administration, and for a progressive and liberal policy of government.

It is true, as the English statesman quoted asserts, that China has never received a blow against a vital part of its territory or system of government, but the Japanese war was a rude awakening from its conservative stupor. It led to commercial, industrial, and territorial aggressions which resulted in the Boxer uprising in 1900 and the movement to expel all foreigners from the Empire, which in its turn at last opened the eyes of the conservative rulers to the great needs of the country. A brief reference to these events will enable us the better to understand the present condition of China.

An intense hatred of foreigners has marked the intercourse of its people with the outside world. The casual observer usually attributes this hatred chiefly to their antipathy to the missionaries, who have permeated the inmost recesses of the Empire. But an examination of the events of the past

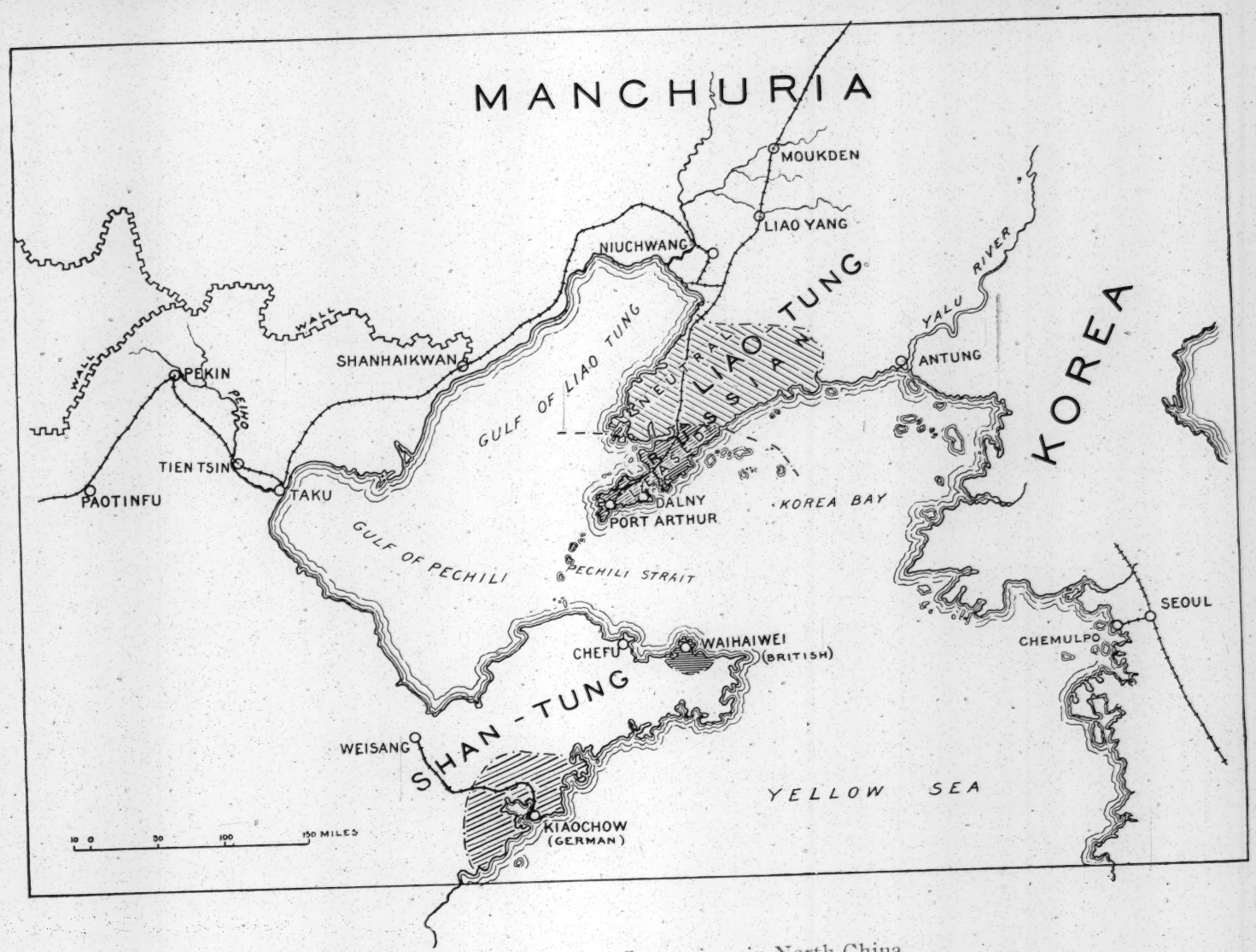
ten years will show that other causes have more powerfully contributed to this state of feeling.

It is not to be denied that the introduction of Christianity into China has caused disturbances. There, as elsewhere, and in all ages, its influence has been revolutionary. Its founder declared he "came not to send peace, but a sword." Paul, the first and greatest of all missionaries, when he declared the gospel was "the power of God," used the Greek word *dunamis*, which has been anglicized to designate the most powerful of all modern explosives, dynamite. The teaching of Christianity in China tended to the introduction of ideas hostile to the existing governmental order and struck at ancestral worship, the most dear-cherished of all Chinese customs. The missionaries also opposed such native practices as slavery, concubinage, support of heathen festivals, and foot-binding. But the testimony of the best observers is that the Chinese are not inclined to religious persecution, and that their antipathy to the missionaries is not so much on account of their religion as because they are foreigners, and their presence leads to the introduction of foreign methods. Nevertheless, the propagation of Christianity has been attended by serious opposition and bloody riots.

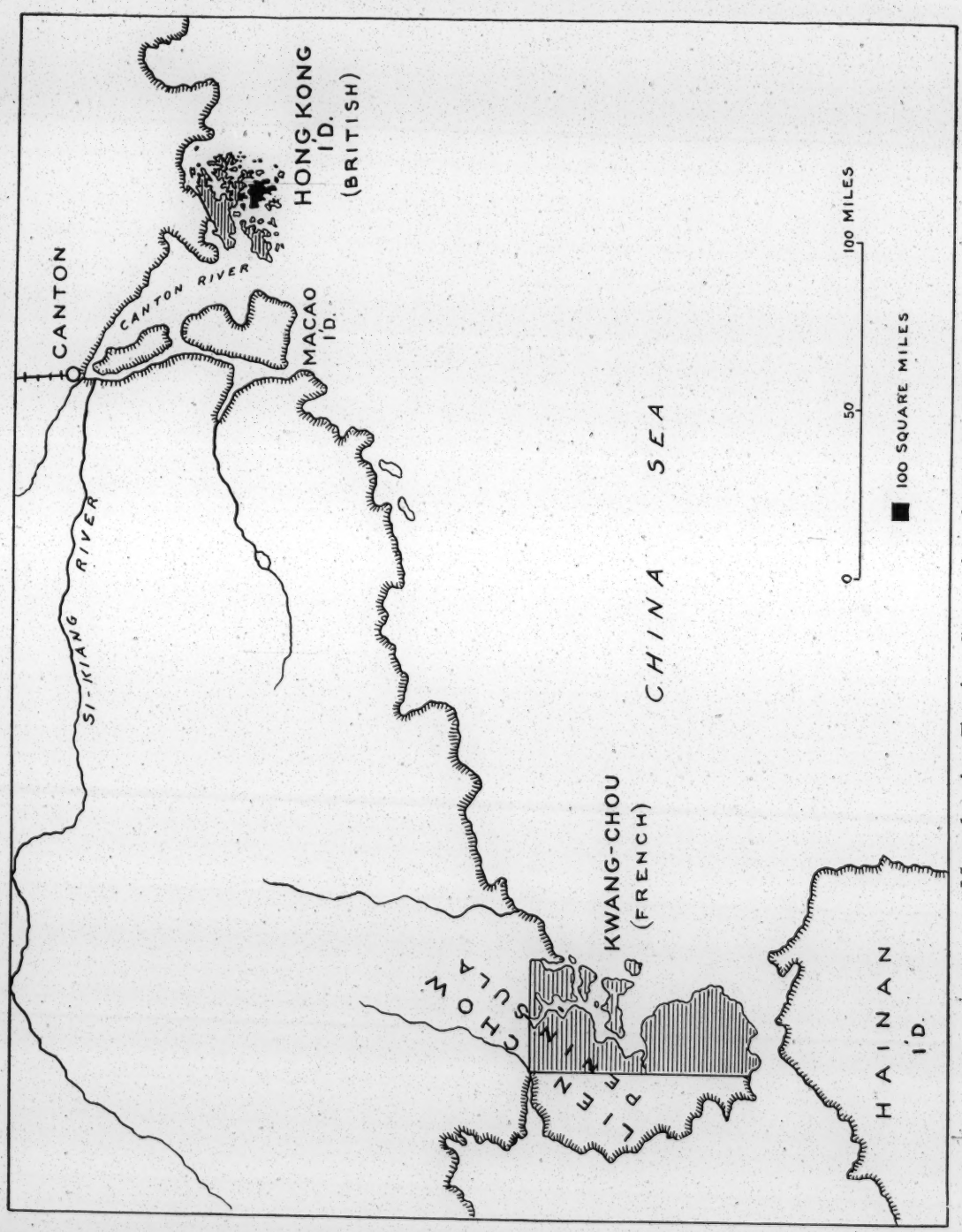
A careful examination of the history of China, however, will show that the missionaries were far from being the chief cause of the Boxer uprising and the disturbances of the year 1900. History makes it plain that the principal object of securing intercourse with the East by the Christian nations has been the introduction and extension of commerce. On this account China has time and again suffered wars and great humiliation at the hands of powerful European nations. The unwelcome traffic in opium, forced upon China by Great Britain in order to benefit British has spread its baleful effects throughout the whole land. The establishment of lines of steamships and the construction of railroads have thrown hundreds of thousands of Chinese laborers out of employment. The growing importation of American and British cotton fabrics have made idle looms and untilled cotton fields; American kerosene is destroying the husbandry of vegetable oils; and in an infinity of other ways is Western commerce affecting the domestic industries, and this with a people who are intensely conservative, wedded to ancient customs, and inveterate enemies of foreign trade.

The construction of railroads was bitterly opposed by the masses of the people, not only for the reasons just stated, but because it disturbed their venerated ancestral worship. Chinese burial places are not segregated, but are found all over the face of the country. Their desecration is regarded as the most heinous of crimes. It is stated that the Germans, in constructing a line from their port of Kiao-chau, a distance of forty-six miles, though using all the care possible to pass around the most thickly located burial places, had to remove no less than three thousand graves. It is not strange to learn that all lines of railway in their inception had to be guarded by soldiers.

After the Japanese war a new impetus was given to commercial enterprise. Foreign traders, as well as missionaries, visited the interior, and the Chinese saw their country being overrun by the hated people. A scramble for railroad and mining concessions followed, supported by the influence of the representatives of the foreign governments; grants were made to Russians, French, British, Americans, Belgians, and others, and the whole territory of the Empire seemed destined to be plowed over by the feared and hated locomotive, and the most profitable enterprises to be placed in the hands of the despised foreigners. These commercial influences contributed much



Map showing Foreign Concessions in North China



Map showing Foreign Concessions in South China

more than the missionaries to the late uprising in China.

The most potent cause of the Boxer movement was neither the missions nor commerce, but the political influences which were operating for the dismemberment and destruction of the Empire. These influences were especially manifest during 1897 and 1898. The cession of Formosa to Japan in 1895 was not so offensive, as it was the result of a great war, and some compensation to the victor in territory seemed natural; but the effect of the next aggression was quite different. Following the murder of two German Catholic priests by a mob in Shantung in November, 1897, the German government sent a strong naval force to the spacious harbor of Kiao-chau, ejected the Chinese forces from the fortifications, and occupied the place with marines. This was soon followed by the demand of the German minister in Pekin for an apology for the murder of the priests, a large indemnity, and a lease of the harbor and an adjoining extensive section of territory, with the privilege of building railroads and exploiting mines in the province of Shantung. The remonstrances of the Tsung-li Yamen (the foreign office) against this summary method of procedure and the exorbitant demands were of no avail.

The German seizure of Kiao-chau was followed a month later by the occupation of Port Arthur by a Russian fleet, and in March, 1898, Russia secured a lease of that strong fortress and harbor, as well as the neighboring port of Talienwan and the control of the peninsula of Liaotung and the adjoining islands, with the privilege of connecting the leased territory by railroad, through Manchuria, with the Siberian trunk line and the right to protect the line with Russian soldiers. Only three years before Russia, in conjunction with its ally, France, and with Germany, had compelled Japan to give up the Liaotung peninsula on the ground that a nation holding it might at any time threaten Pekin. That action of Russia led Great Britain to demand and secure the lease of the fortress of Wei-hai-wei and a strip of adjoining territory on the opposite promontory, and also a large portion of the mainland opposite Hongkong. France, which had some years before taken the large suzerain territory of Annam and Tonquin, also secured in 1898 an enlargement of its possessions in that region at the expense of China in the lease of important harbors and the peninsula opposite the island of Hainan.

These proceedings were followed by agreements or treaties between Russia and Great Britain and between Germany and Great Britain as to what are termed "spheres of influence" in China without consulting the government of that country or taking its wishes or interests into account. At the demand of the same powers several new ports were opened to foreign trade, with the usual concomitants of foreign territorial concessions and extraterritorial jurisdiction, until now the extensive Chinese Empire is reduced to the anomalous condition of scarcely possessing a single harbor in all its long line of seacoast where it can concentrate its navy and establish a base of warlike operations without the consent of the treaty powers. Not the least of the irritants which induced the Boxer movement was the foreign authority which was exercised in the treaty ports and the abuse and contempt with which the natives were there treated.

The rulers of China understood full well the causes which had nerved their people to rise in their wrath and undertake the impossible task of the expulsion of the foreigners. In 1900, after the Boxer movement had been put down, Li Hung Chang, in giving the cause of the outbreak, stated that its chief impetus was found in the high-handed course of Germany, and it "was due to

the deep-seated hatred of the Chinese people toward foreigners. China had been oppressed, trampled upon, coerced, cajoled, her territory taken, and her usages flouted." The Empress Dowager, in her famous proclamation, issued when the Boxers were reaching their ascendancy and just before the violent outburst of 1900, exclaimed: "The various powers cast upon us looks of tiger-like voracity, hustling each other in their endeavors to be the first to seize upon our inmost territory. They think that China, having neither money nor troops, would never venture to go to war with them. They fail to understand, however, that there are some things which this Empire can never consent to, and that, if hard pressed, we have no alternative but to rely upon the justice of our cause, the knowledge of which in our breast strengthens our resolve and steels us to present a united front against our aggressors."

It is unnecessary for me to rehearse the events which attended the Boxer uprising of 1900. The siege of the legations, the repulse of the relief force, the march of the allied army to Pekin, the flight of the court, the deliverance of the diplomatic corps and the foreign residents of the capital are fresh in your minds. What followed is of special interest in connection with the declaration of the British statesman.

The events succeeding the Japanese war of 1894 and the intervention of the foreign powers to put down the Boxer movement seemed to presage the dismemberment of the great empire. But through the opportune action of the government of the United States a situation arose which gave promise of the preservation of the Chinese government and nation. While the allied powers were gathering their forces for the march upon Pekin, in which the United States readily participated, Mr Hay, the American Secretary of State, under date of July 3, 1900, sent a circular note to the powers, in which the purpose of the United States in uniting in the military movement was set forth, and it was declared that the ultimate object should be to bring about permanent safety and peace in China, preserve its territorial and administrative entity, and safeguard for the world the principle of equal and impartial trade with all parts of the Chinese Empire.

Although this policy was not in harmony with the recent conduct of some of the European powers, it was so fully consonant with the principles of international justice that it met with the approval of the intelligent public sentiment of the world. Through the long and tedious negotiations which followed the occupation of Pekin by the allied army this policy was consistently adhered to by the United States, and has stood in the way of all further encroachment on Chinese territory.

In the settlement of the claims of foreign nations and subjects growing out of the Boxer troubles China was made to drink the cup of humiliation to its very dregs. The protocol which was signed between the Chinese plenipotentiaries and the eleven foreign representatives who participated in the negotiations shows how utterly helpless the Chinese government recognized its situation to be, and it may be well to recall the terms of that instrument. The edict of the Emperor, which was required to be issued before the protocol was signed, indicates both the attempted exculpation and the abasement of the throne, and is quoted in part as a specimen of Chinese official language, as follows:

"When we consider the commencement of these (Boxer) events, we find that they are attributable to several stupid princes and ministers, insane, absolutely ignorant, turbulent, and who have ignored the laws. They had almost absolute confidence in pernicious methods and have led on the court.

Not only did they refuse to obey our orders to exterminate the Boxers, but they have gone so far as to believe in them, and stupidly they began to attack the legations. So it was that this evil fire spread abroad, and circumstances did not permit of its being stopped, several thousands of evil-doers having assembled at the elbow and the armpit (that is to say, at the most important points). Furthermore, the leaders forced generals and ignorant soldiers to attack the legations, and so it befell that inconceivable evils existed for several months.

"The tutelar deities of the Empire have been in danger, the imperial tombs and the temples of ancestors have trembled, the country has been devastated, the inhabitants are plunged in misery. No words can express the dangers to which we and Her Majesty the Empress Dowager have been exposed. Our heart and our head are still in pain; our tears and our resentment are confounded. It is to you, princes and ministers, who, by believing in evil words and allowing evil-doers free hand, have put in danger in heaven our ancestors and our gods, and who here below have caused the people to endure these calamities."

The protocol contained the following provisions: Prince Chun, of the imperial family, was to make a journey to Berlin to convey to the Emperor of Germany the expression of the regrets of the Emperor of China and the Chinese government for the assassination of Baron von Ketteler, the German minister. The Chinese government further agreed to erect a memorial monument, in the shape of an arch, covering the entire width of the street, on the spot where the assassination occurred, with inscriptions in the Latin, German, and Chinese languages, expressing the regrets of the Emperor of China for the murder; and to make reparation for the assassination of the chancellor of the Japanese legation, the Emperor, by imperial edict, sent an official of high rank as his plenipotentiary to Tokio to express to the Emperor of Japan his regret at that assassination.

Punishments of various kinds were to be inflicted on the officials guilty of complicity in the Boxer movement. Some of the imperial princes, cabinet ministers, and generals were ordered to commit suicide, others to be beheaded, a number deprived of their honors and degraded, and some of the leaders closely connected with the imperial family sent into perpetual banishment and imprisonment. The edict ordering these punishments has some expressions peculiarly Oriental. Of Prince Tuan it is said "he led away with him several princes. He foolishly gave heed to the Boxers and stupidly advised fighting. So all these troubles broke out." Duke Fu Kuo "foolishly published proclamations contrary to the treaties. He should also be punished for his faults. We deprive them of their titles of nobility, but considering that they belong to our family, we order, as a special act of grace, that they be sent to Ili, where they shall be condemned to prison for life."

Tu Hsien "foolishly believed in the charms of the Boxers. Arriving at Pekin, he extolled them so highly that several princes and ministers fell under his evil influence. Being governor of Shansi, he massacred a great number of missionaries and Christians. He is worse than an imbecile, than a fool, than a murderer; he is the chief culprit and author of all these calamities. . . . We order that he shall be at once beheaded."

Prince Chuang, "already degraded, allowed the Boxers to attack the legations. He, on his own authority, published proclamations contrary to the treaties; he lightly believed the statements of evil-doers; he unlawfully caused to be decapitated a great number of persons; he has shown himself, of a

truth, vulgar and stupid. We invite him, as a favor, to commit suicide. We direct Ko-pao-hua, President of the Board of Censors, to go and see that he does it."

After directing the various other punishments to be carried out, the edict concludes: "After the promulgation of this decree all our friendly nations should recognize that the events caused by the Boxers are in truth only attributive to the principal authors of trouble, and in no wise to the wishes of the court."

The protocol of the foreign powers further required that the official examinations (which are the stepping-stones for admission to official life) be suspended for five years in all cities where foreigners were massacred or cruelly treated; that expiatory monuments be erected in all foreign cemeteries which had been desecrated (the expenditure for which in Pekin alone amounted to over $50,000); that the importation into China of arms and ammunition be prohibited for two years, and the publication and posting in all the provinces of an imperial edict announcing the punishments stated, and also that membership in any anti-foreign society would be punished with death, and that viceroys, governors, and provincial or local officials would be held responsible for anti-foreign troubles in their respective districts, and if the authors were not immediately punished, these officials would be promptly dismissed and forever deprived of official functions and honors.

An indemnity of 450,000,000 taels (approximately $337,000,000) was stipulated to be paid in installments to thirteen foreign governments to cover losses of individuals and the expenses of the armed expedition to Pekin. The share of the United States was over $24,000,000.

But even these drastic measures were not regarded as a sufficient punishment and humiliation. The Chinese government was required to set apart a large section of the city of Pekin for the foreign legations, the same to be fortified and garrisoned by an unlimited number of foreign troops; the strong fortresses at the mouth of the Pei-ho River and all the fortifications from that point to Pekin to be razed to the ground, and these and other points on the route to the imperial capital to be occupied by foreign troops.

It is creditable to the plighted faith of the Chinese government to be able to state that these harsh and abasing measures have been and are being carried out with exactness.

I have gone somewhat into detail in giving the terms of settlements made between the imperial government and the foreign powers in order to show what exemplary and onerous measures were deemed necessary as an atonement for the acts caused by the anti-foreign uprising of 1900 and to prevent a recurrence in the future. The severe lesson is bringing forth beneficent results. The two British wars of 1840 and 1860, with the British and French occupation of Pekin and the French hostilities of 1885, had done little to open the eyes of the Chinese ruling classes to the futility of the anti-foreign spirit; and even the Japanese war of 1894–'5 in no marked degree had overcome that sentiment. The exactions of the foreign powers, as shown in the protocol of 1901, at last opened the eyes of the conservative officials to the necessity of a new order of affairs.

A great change has taken place and is still going on in that Empire. It has begun at the fountain-head of power and influence in the person of the Empress Dowager. She has been the real ruler of China for more than a quarter of a century. She is a remarkable woman, of great intellectual power, of strong will, and of marked influence upon the statesmen who surround the throne and direct the administration of

government. She has apparently read well the lesson taught in the protocol of the foreign powers. Her views and her conduct have undergone a great change. From a strong conservative and vindictive in temperament, she has become a liberal ruler and displays a kindly spirit to those who come in contact with her.

The court, like its mistress, has undergone a great transformation. For two hundred and fifty years, since Russia first established diplomatic intercourse with it, the Western powers have been engaged in a constant struggle to secure recognition on a basis of equality. Up to a very recent date no one could appear in the presence of the occupant of the Dragon Throne without prostration and personal abasement. Today the Emperor may be seen as readily and with as little formality as in audience of the crowned heads of Europe, and the Empress Dowager delights to entertain her foreign visitors with an afternoon tea. The newspaper correspondents and society gossips give Mrs Conger, the accomplished wife of the American minister, much credit for the friendly change in Her Majesty's attitude toward foreigners. It is pleasant to remark, in passing, that Mr Conger has won golden opinions from native and foreign circles for his great discretion and good judgment in his long term of diplomatic service, for his fortitude in the siege of the legations, his uniform courtesy, and his devotion to the interests of his country.

The change in the conduct of the Empress Dowager has led to the sending abroad of imperial princes, has impressed itself upon her cabinet ministers and their subordinates, and its effect has extended to the remotest provinces. She has taken care to send to some of the most conservative and anti-foreign provinces viceroys of known liberal views, who are rapidly transforming the sentiments of the inhabitants. The edicts which have recently appeared rival the liberal ones of the Emperor six years ago and for which he was virtually deposed, making changes in the subjects and methods of the government examinations for officials, relegating to a less prominent place the Chinese classics, etc., bringing to the front "the Western learning," modern science, history, and politics, directing the establishment of colleges and schools, and denouncing official corruption.

A spirit of intelligence is being awakened. Under the direction of Sir Robert Hart, a domestic postal system has been established (hitherto unknown) reaching to the remotest parts of the Empire. A great desire for education has been created. Viceroys and governors are establishing colleges and schools on the Western model, and the demand for foreign teachers has been greater than the supply. Many more students than formerly are being sent abroad. More than one thousand are now in the Japanese universities and colleges; many hundreds have been sent to Europe, and quite a number are now in American institutions of learning.

Many more would be in this country were it not for the harsh measures of the immigration officials at San Francisco applied to incoming Chinese students. Mr William E. Curtis, the well-known newspaper correspondent and author of Oriental books, who has recently returned from a visit to China, is my authority for this statement. There are now in the United States the sons of two of the most influential viceroys and of other high officials. Mr Curtis says "they could not have entered this country without suffering shameful indignities and humiliations, if they had not accompanied the Chinese minister at Washington as a part of his suite." He adds: "No Chinese gentleman, whatever his rank or wealth or purpose, can enter the port of San Francisco without

suffering insult from the immigration officials there."

I am pleased to say that under the new administration of Chinese immigration by the Department of Commerce and Labor some amelioration of the harsh rules has been experienced, and it is anticipated that the new treaty being negotiated between the two governments will sweep away the regulations which have brought shame to our country. We have published to the world that our people can not compete with the Chinese in industrial pursuits, and the imperial government itself recognizes that the exclusion of Chinese labor is the settled policy of this country; but it is highly desirable that the United States, which has been foremost among the nations in conceding the equality of that Empire in its international relations and in encouraging it to enter upon a liberal policy, should welcome to our shores its merchants and students.

Another evidence of the spirit of enlightenment now prevailing in China is the establishment and multiplication of newspapers. That Empire boasts of the oldest newspaper in the world, the Pekin *Gazette*, the official organ of the government, dating back 3,000 years; but it is merely the publication of the official edicts and orders. Until recent years no other newspaper was published in the vernacular. Since the new régime at Pekin newspapers and periodicals in China have greatly increased, until now scarcely any important town is without one or more of them.

Other evidence of the new spirit are found in the proclamations of some of the viceroys against the female practice of foot-binding and against the national vice of gambling and other demoralizing practices. Anti-foreign, and especially anti-missionary, riots have almost entirely ceased; when they occur they are due to local and exceptional causes, and the offenders are promptly punished.

The material improvement in the country is especially noted in the rapid development of railroad construction. At the conclusion of the Japanese war there were less than 200 miles of railroad in operation. Now there are about 2,000 miles completed and 1,200 in process of construction. Of the completed portion, 1,050 miles have been built by the Russians in Manchuria and on the Liaotung peninsula. It may reasonably be expected that within a few years trunk lines and branches will traverse the thickly settled portions of the provinces, which should have the effect to consolidate the power of the central government, tend to exterminate the anti-foreign spirit, and greatly develop the resources of the Empire.

It is not the province of the lecturer before a geographic society to enter the field of prophecy, and it is even unsafe for a student of international politics; but I may venture some suppositions at least respecting the future of China. We can not anticipate the same rapid development in Western methods which has attended the history of Japan during the last half century. If for no other cause, the different temperament of the race will prevent it. But it is quite certain that China has entered upon the task of internal reform and transformation, and that the movement, though it may be retarded, will not go backward. Its future depends much upon the final result of the present Russo-Japanese war. If it shall terminate with the permanent withdrawal of Russia from Liaotung and Manchuria, Japanese influence will be in the ascendancy in China, and the reform movement will go forward more rapidly. Already they are exercising a greater influence on the people than any other nationality. It is said that 70 per cent of the foreign teachers are Japanese, and they are largely represented in the Chinese army. Their commerce with the country is growing

more rapidly than that of any other nation.

Should they become the predominating influence in political and governmental circles as well, students in the questions of the Far East have seen a threatening danger for the nations of Christendom. The "Yellow peril," in their view, looms large above the horizon of the Pacific. It may have some interest in this connection to state that this subject was more than once discussed during the peace negotiations between China and Japan by their two greatest statesmen, Li Hung Chang and Marquis Ito. I make the following extract from the report of the verbal conferences:

"VICEROY LI: On the Asiatic continent China and Japan are close neighbors, and the written language is the same. Is it well that we should live at enmity? . . . We should follow the example of Europe—increase our armaments, and confederate. If Your Excellency and myself thoroughly appreciate this, we can not but conclude that the policy which should rule the Asiatic continent is that we should establish an enduring peace in order to prevent the *yellow race* from succumbing to the *white race* of Europe.

"MARQUIS ITO: I indorse Your Excellency's views with all my heart. While I was in Tientsin ten years ago, I discussed with Your Excellency upon the reforms in China, but I regret to see that nothing whatever has been done.

"LI: I remember. . . . Yet, shame to say, ten years have wrought no changes—a proof of our incapacity; while Japan has organized an efficient army after Western models, and is constantly perfecting her government.

"ITO: Heaven is impartial and speeds the right. If China will but make an effort help will come from on high. Let there be the will, and Heaven, who cares alike for us all, will not forsake you; thus a nation may control its own destiny. . . .

"LI: Suppose China was to invite you to be her prime minister?

"ITO: I would accept with my Emperor's permission."

Sir Robert Hart, who for half a century has made a study of Chinese character and capacity, writing just after passing through the siege of the legations in 1900, expressed the belief that the Chinese hatred of foreigners was a real menace to the world. He suggested two remedies for this impending danger: the first was partition of the vast Empire among the great powers, which he regarded as full of difficulties; the second, a miraculous spread of Christianity, "a not impossible, but scarcely to be hoped for, religious triumph . . . which would convert China into the friendliest of friendly powers." Certainly such a possibility in the estimate of so high an authority should stimulate the friends of Christian missions to redouble their efforts among that great people.

I have never regarded the "Yellow peril" with serious concern. Japan is too greatly leavened with the spirit of modern ideas to make race hatred a controlling motive of its foreign policy. If the present movement in China continues, the anti-foreign feeling there must be greatly modified. The wonderful development of Japan's military power certainly adds a new factor to the international problems of the world, but its policy will be along economic rather than racial lines.

Happily the ruling power today in the Far East is Great Britain. Her government has most heartily supported the efforts of Secretary Hay to maintain the autonomy of China and an "open door" there. "A nation of shopkeepers" was the term derisively applied by Napoleon to the British, and it has adhered to them for a century; but in that period they have gone on extending their trade, sometimes by force of arms, and, as opportunity offered, by diplomacy or enterprise, until today they control a domain grander than ever before held under the

sway of one government. While the motive which brought about this dominion was mainly mercenary, it has resulted in great good to the human race. He who journeys around the globe is impressed with the mighty power of British rule, but he also sees that its rule is beneficent; and such is the general, though not the invariable, influence of commerce. It opens nations to intercourse, it tends to peace, it enlarges the comforts and aspirations of the people.

It is fortunate that the interests and the policy of the United States and Great Britain in the Far East so fully harmonize. Japan has manifested with equal heartiness its conformity to the same policy. There is no reason why the other commercial nations should not pursue the same line of conduct. Hence, if internal peace is preserved, the ancient Chinese Empire may look forward to an era of unprecedented development and prosperity, and add many more cycles to its unparalleled history.

A DOUBTFUL ISLAND OF THE PACIFIC*

BY JAMES D. HAGUE

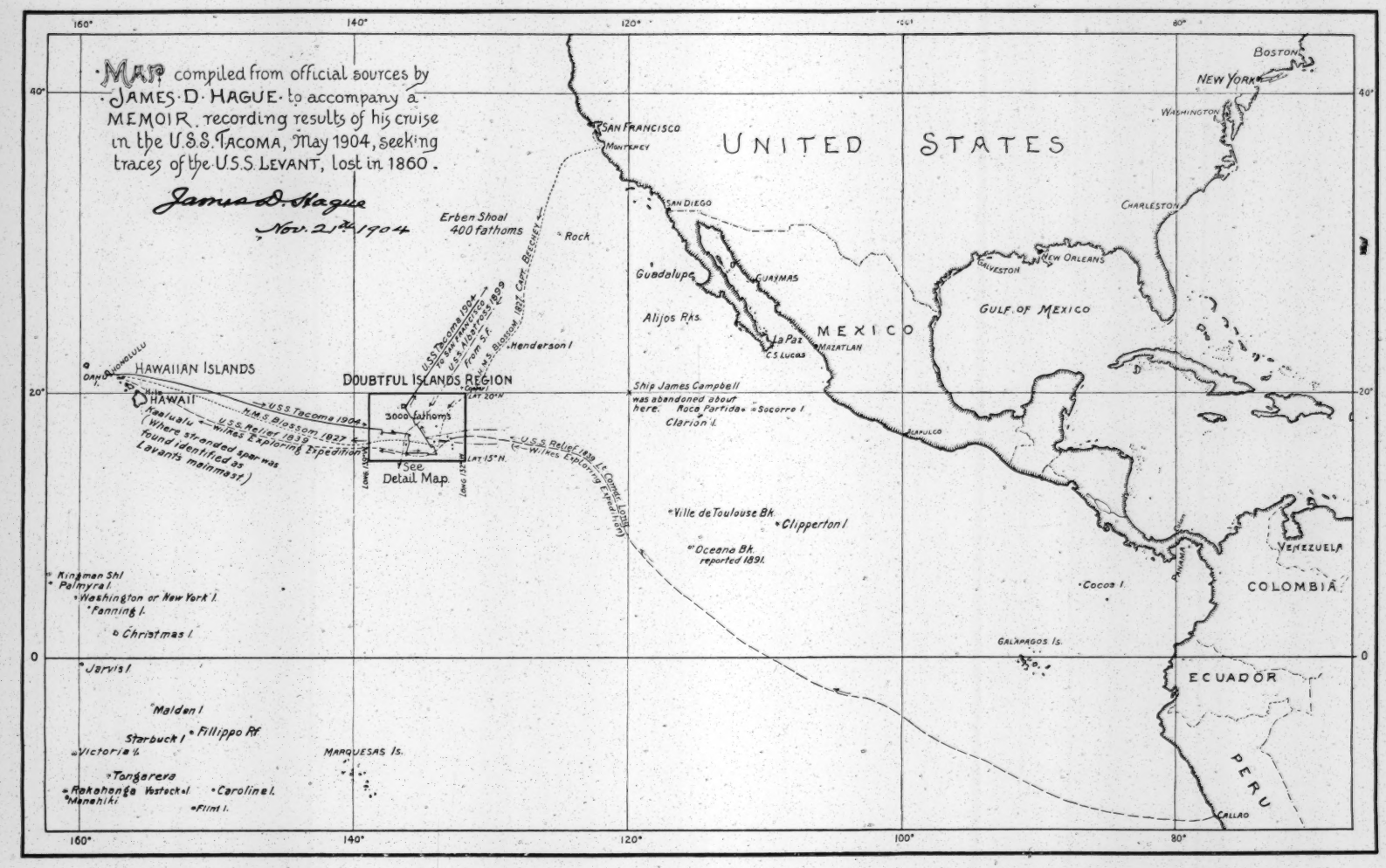
Data concerning the questionable existence of a reported island or islands in the North Pacific Ocean between Hawaii and Panama, with results of the cruise recently made by the U. S. ship Tacoma in search of such islands, with some discussion of the reasons for believing that the U. S. sloop-of-war Levant, which disappeared mysteriously in 1860 on her voyage from Hawaii to Panama, may have been wrecked on an island in this neighborhood, with the possible survival of some of the ship's company.

IN the North Pacific Ocean, about 1,000 to 1,200 miles east-southeast from Hawaii, somewhere between the meridians of 133 and 138 degrees of longitude west from Greenwich, and included within the fifteenth and twentieth parallels of north latitude, substantially in a direct line between the port of Hilo, on the Island of Hawaii, and the Bay of Panama (nearly 4,500 miles distant), there is a mid-ocean area covering about 200 miles in latitude by 150 or 200 miles in longitude, equal to 30,000 or 40,000 square miles, from which region during the past eighty years or more, from time to time, there have come occasional reports of an island or islands said to have been observed by passing navigators.

Nearly, if not quite, all these reports appear to have come originally, mostly more than fifty years ago, from cruising whalemen, who were practically the only voyagers who until lately ever found any occasion or good reason to visit this remote part of the Pacific in pursuit of business. The region lies beyond the usual tracks and sailing routes of commercial voyagers, and very few vessels of other classes excepting whalemen have had any occasion to traverse this unfrequented sea, which, if it contain no island, is not far from the center of the largest landless ocean area on the surface of the globe, while, if there be an island, it is perhaps the most remotely isolated land in the world.

The accompanying maps show, first, on the smaller scale, the general relations of this remote region to the American coast and to the Hawaiian Islands;

*Read in part before the Eighth International Geographic Congress at a meeting of the Section of Oceanography, September 13, 1904.



Map showing Relative Position of Doubtful Islands Region, the Hawaiian Islands, and the American Coast

and, secondly, in larger detail, some of the assigned positions of reported islands, reefs, or shoals, said to have been observed within the questionable area, together with the sailing tracks of the several vessels, not less than six, which from time to time during the past eighty years have been sent to explore the doubtful region. It is true that of all these reported islands, reefs, or shoals no one has ever yet been found by any of the vessels sent to seek them; but it is also true that a very large part of the questionable area from which the uncertain reports of observed islands have come has never yet been seen or visited by any of the exploring vessels sent out for such purpose, whose sailing tracks are shown on the accompanying maps.

The earliest of these expeditions appears to have been that of H. M. ship *Blossom*, in 1827, under the command of Capt. F. W. Beechey, who in his narrative (vol. 2, p. 88) gives a short account of an unsuccessful search for reported islands near the *Blossom's* route, and especially in the region of 16° north latitude and 130°–133° west longitude. He mentions Henderson's and Cooper's Islands by name, and has "New Island," in about latitude 17° north and longitude 136° west, on his track chart. His search was too limited to settle the question conclusively, but he says he saw none of the usual signs of land. His track chart shows that he made his examination between January 11 and 28, 1827. No soundings are noted thereon. In a footnote, page 88, he adds that he has heard that an island of moderate height has been seen by the *Sultan*, an American whaler, in latitude 15° 30′ north and longitude 134° west.

Ten years later, in 1837, Capt. Sir Edward Belcher, who had served in the above-mentioned expedition of the *Blossom*, revisited the region in command of H. M. ship *Sulphur* with the consort *Starling*. In his narrative of this voyage (vol. 1, p. 50) he furnishes a detailed track chart of their search within the area between 15° to 18° north latitude and 129° to 139° west longitude. Careful attention is paid to showing the area visible in daylight and the space covered by night. All soundings, taken two-hourly, with as much line as the velocity of the vessel would admit, are noted at 50 to 65 fathoms, without bottom.

The following notes of his itinerary are drawn from Belcher's narrative:

"*June* 20–21.—The *Starling* was now directed to pursue a course so as to enter on the 130° meridian in latitude 17° north. I bore up to preserve a parallel course to her, and enter at 16° 30′ north, at which point another cluster of doubtful islands was reported to exist, as well as a continuous batch given us by the whalers in 1826 and 1827, as far as 135°, and which we then sought in the *Blossom*, without success. As the *Starling* would preserve a W. b. S. and the *Sulphur* a W. b. N. course through that region, avoiding the *Blossom's* track, they ought to have been found if they existed.

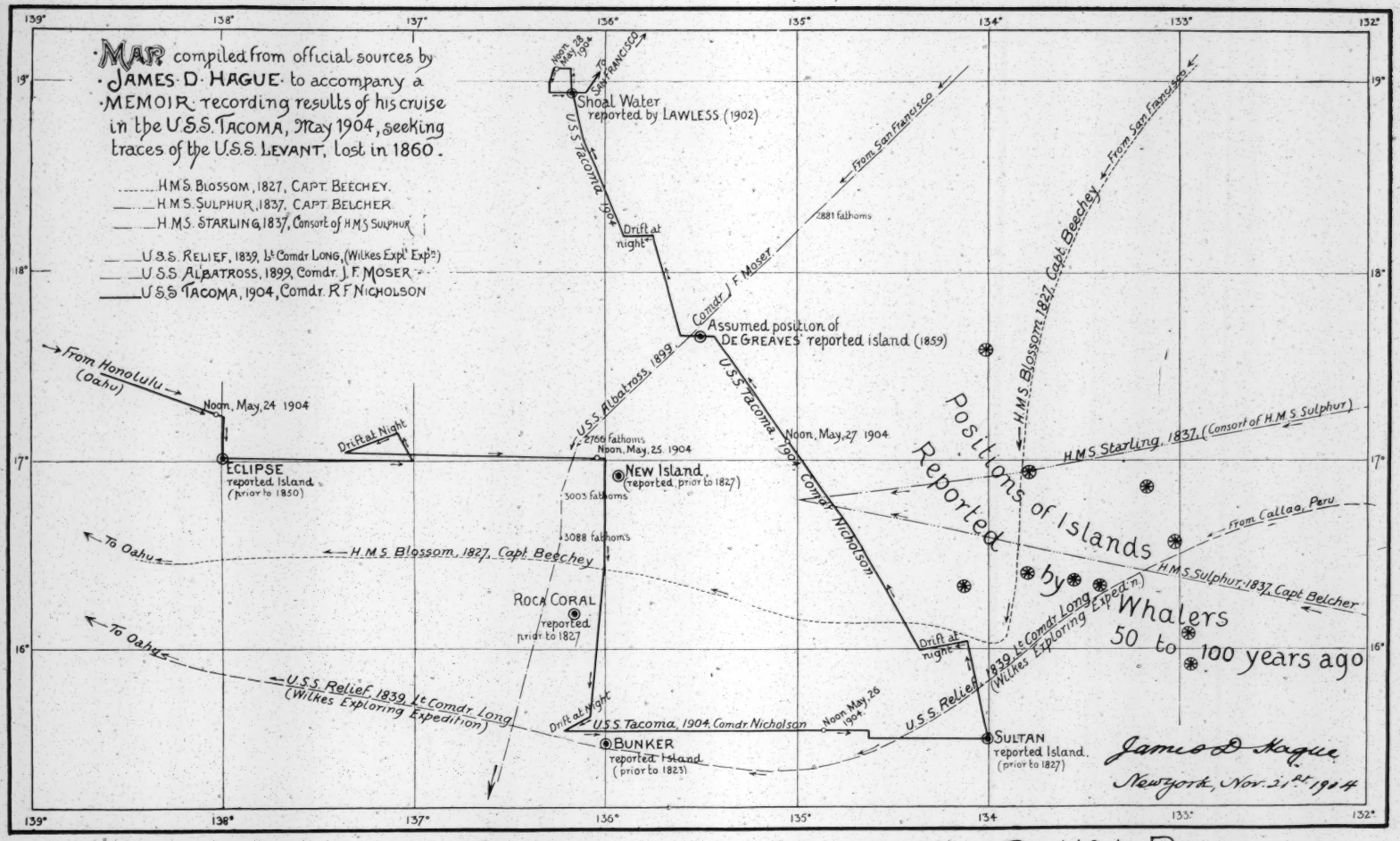
"*June* 22.—Wind light, medusæ more plentiful, and a few sticks floating, excited our hopes of finding land; but the current having been determined to set S. 86° W., this would bring them from Clarion Island.

"*June* 24.—Breeze variable, water smooth, tropic birds (*Phæton ætherius*) and frigate pelican (*Pelecanus aquilus*) also observed. As these latter birds do not go far from land, I am disposed to believe some one of these reports to be well founded, but the position erroneously determined.

"*June* 25.—. . . Should chance lead me in this direction again I shall certainly cross the meridian of today fifteen miles farther south.

"*June* 26.—Wind same, fewer birds but no symptoms of land.

"*June* 27.—On the 27th entered the limits assigned to whalers' discoveries.


MAP compiled from official sources by JAMES D. HAGUE to accompany a MEMOIR recording results of his cruise in the U.S.S. TACOMA, May 1904, seeking traces of the U.S.S. LEVANT, lost in 1860.
H.M.S. BLOSSOM, 1827, CAPT. BEECHEY.
H.M.S. SULPHUR, 1837, CAPT. BELCHER.
H.M.S. STARLING, 1837, Consort of H.M.S. SULPHUR
U.S.S. RELIEF, 1839, Lt Comdr LONG, (Wilkes Expl Exp.)
U.S.S. ALBATROSS, 1899, Comdr. J. F. MOSER
U.S.S. TACOMA, 1904, Comdr. R. F. NICHOLSON
Noon May 28 1904
To SAN FRANCISCO
Shoal Water reported by LAWLESS (1902)
U.S.S. Tacoma 1904
Drift at night
2881 fathoms
From San Francisco
Comdr J. F. Moser
Assumed position of DE GREAVES' reported island (1859)
U.S.S. Albatross, 1899
From Honolulu (Oahu)
Noon, May, 24 1904
Drift at Night
ECLIPSE reported Island (prior to 1850)
2766 fathoms
Noon, May, 25 1904
NEW ISLAND (reported prior to 1827)
3003 fathoms
3088 fathoms
U.S.S. Tacoma, 1904, Comdr Nicholson
Noon, May, 27 1904
H.M.S. Blossom, 1827, Capt. Beechey
From San Francisco
H.M.S. Starling, 1837, (Consort of H.M.S. Sulphur)
From Callao, Peru
H.M.S. Sulphur, 1837, Capt. Belcher
To Oahu
ROCA CORAL reported prior to 1827
Drift at night
U.S.S. Relief, 1839, Lt Comdr Long (Wilkes Exploring Expedition)
To Oahu
U.S.S. Relief, 1839, Lt Comdr Long (Wilkes Exploring Expedition)
Drift at Night
U.S.S. Tacoma, 1904, Comdr Nicholson
Noon, May, 26 1904
BUNKER reported Island (prior to 1823)
SULTAN reported Island. (prior to 1827)
Positions of Islands Reported by Whalers 50 to 100 years ago
James D Hague
Newyork, Nov. 21st 1904
139° 138° 137° 136° 135° 134° 133° 132°
19° 18° 17° 16°

—· Map showing assigned Positions of reported Islands in the Doubtful Region ;—
—· and the Sailing Tracks of Vessels sent to seek them ·—

"*June* 28.—Crossed *Blossom's* track.

"*June* 29.—Passed over many positions assigned—no signs of land.

"I have been thus minute upon this subject, as I can not divest myself of the impression that land exists in this neighborhood. So many assertions can hardly rest on imagination."

The sailing tracks of the *Sulphur* and *Starling* within the above-indicated area appear on the accompanying maps as shown on an old chart of the North Pacific Ocean (copyrighted in 1849, with additions to 1864, by E. and G. W. Blunt, New York), and a number of islands, several separate and some in two small groups, are copied from the same source.

In 1839, two years after Sir Edward Belcher's search in the *Sulphur*, one of the vessels of the United States exploring expedition, the *Relief*, on her voyage from Callao, Peru, to the Hawaiian Islands, was ordered by Admiral Wilkes to visit this region of questionable islands under instructions addressed to Lieut. Commander A. K. Long, as follows:

"U. S. SHIP VINCENNES,
"*Callao, July 12th, 1839.*

"SIR: You will proceed from this port to Oahu, Sandwich Islands, taking in your route the American group of islands in latitude 16° 10′ N., longitude 134° 50′ W. These islands have been unsuccessfully looked for by Captain Beechey in this position. You will therefore make the latitude in 130° west, to the eastward of their supposed situation, and run along it until you reach 140° W.; thence direct to Oahu."

The accompanying map shows the sailing track of the *Relief*, covering more than fifteen degrees of longitude, along the latitude of 15° to 16° north. I have not found in Admiral Wilkes' narrative any detailed report of this cruise of the *Relief*, but it is safe to assume that no land was discovered in the region referred to.

The Hydrographic Office of the Navy Department has published "Reported Dangers in the North Pacific," and in the "Supplement 417, 1880," No. 563, a mention is made of "a group of islands" in latitude 16° 30′, with the authority, "Krusenstern, from American Whalers," and an "island" in latitude 15° 30′, longitude 136°, Captain Bunker, 1823.

For some of the foregoing interesting references, with data from Blunt's chart, I am indebted to Prof. George Davidson, of the University of California, during many years chief of the Pacific Coast Division of the United States Coast Survey, who writes as follows concerning the reported islands:

"I judge that the group of ten islets, close together, really refer to one or two islets, and that its position was reported by some whalers to many others, who, each independently, reported it without having seen it. No body of whalers could have so closely determined the positions indicated. The eastern compact group of four may really refer to the larger group. The two islands, "New" and "Roca Coral," may refer to one island, with a longitude much west of the former groups.

"One thing seems to me probable, that *there is some danger to navigation in that region.* And now that our commerce is rapidly increasing and these reported dangers lie directly in the route of sailing vessels to Australia from San Diego and San Francisco, it becomes incumbent upon our government to make an exhaustive survey of that region.

"Whatever has been done by our vessels in that region has been only incidental to other duties, and only satisfactory on the line or lines on which they sailed. Some naval officer and some vessel fitted for such work should be employed a full season, if necessary, to make an exhaustive investigation of the region of the reported dangers."

During the sixty years following Sir Edward Belcher's search in the doubtful region (1837), there were, so far as I am aware, no trustworthy observations of land reported in that quarter, unless the somewhat vague statements and uncertain memories of old-time whalemen be excepted. Nevertheless nearly all the standard charts, maps, and globes continued to show in that neighborhood, at least until lately, one or more islands of doubtful existence and position. It is said, moreover, that one or more vessels have visited the field on various occasions seeking guano islands without finding any.

In August, 1899, the Fish Commission steamer *Albatross*, Commander Jefferson F. Moser, with a party of scientific explorers under the direction of Mr. Alexander Agassiz, left San Francisco for the Marquesas, with instructions to traverse the doubtful region, keeping a careful lookout for land within sight. From Captain Moser's reports I draw the following notes:

"Shortly after midnight, September 2d, we arrived in the vicinity of the danger previously referred to, and marked '(?) Island' on H. O. chart No. 527, in lat. 17° 10′ N., long. 136° 3′ W., and reported under the name of 'Island,' 'New Island,' 'Roca Coral,' etc. This danger had previously been searched for by H. M. S. *Rattlesnake* and H. M. S. *Sulphur*. The following soundings were obtained by the *Albatross* in that vicinity:

"Station AA No. 8, lat. 17° 13′ N., long. 136° 09′ W., 2,776 fms.

"Station AA No. 9, lat. 16° 62′ N., long. 136° 12′ W., 3,003 fms.

"Station AA No. 10, lat. 16° 38′ N., long. 136° 14′ W., 3,088 fms."

. . . . . .

"At each of the first two stations the operation of sounding occupied about an hour, and during those times a bright lookout was kept for land, without result. At the last station a haul of the beam trawl was made after sounding, the operation occupying from 8.04 a. m. to 3.45 p. m. The lookout kept at this time for land was likewise without result. The weather while in this vicinity was clear and pleasant, with light breeze from northeastward and smooth sea; horizon generally clear. It was noted that at several points close to the horizon low leaden cloud masses assumed a hard, sharp, fixed form, having the outline of and resembling distant high islands. Tropic birds were constantly about, and the previous day (Sept. 1st) several petrels were observed. On the 3d sharks and tropic birds were seen. The presence of this animal life might add strength to the presumption that land was somewhere near, but similar animal life accompanied the vessel on the entire voyage, and was no more abundant in this locality than at any other point on the course. My opinion is that this danger does not exist* *within sight, under fair conditions, of the locality over which the soundings were made.*"

Since the foregoing report was made all indications of islands within this doubtful region seem to have been omitted from later charts issued by the United States Hydrographic Office, which show in that neighborhood only the deep soundings recorded by the *Albatross*.

Within recent years the establishment of a steamship line between San Francisco and Tahiti, of which the sailing route lies more or less within the questionable field, has given further opportunity for occasional search there.

In March, 1902, Capt. Robert T. Lawless, commanding the steamship *Australia*, of the above-mentioned line, observed, as he believes, certain indications of shoal water, which he reported as

*The words in italics were added by Commander Moser in June, 1903, to his report, originally made in September, 1899, after further consideration of the possibility that the island may exist beyond his range of vision from the *Albatross*.

follows: "On my way to San Francisco from Tahiti on the morning of March 17, 1902, in the latitude (see map) of 18° 56′ N., longitude 136° 10′ W., at 5.30 a. m., I passed two patches of what appeared to be, and no doubt was, shoal water. It was blowing a strong trade wind at the time and the sea was too rough to lower a boat to sound, which I should have done had it been smooth. Meeting a shoal so suddenly and unexpectedly, I did not leave the bridge for several hours, thinking I might meet others. I had to alter the ship's course two points to avoid the patches, as they were right ahead when first seen. The course from Tahiti does not lie in the direction of these shoals, but strong trades compelled me to keep off in that direction that I might carry fore-and-aft sail. The latitude can be relied on to one or two miles. The longitude to, say, five miles." Captain Lawless further writes: "It will be seen that at 5.30 a. m. the sun could cast no cloud shadows on the water, the rifts in the clouds could reflect no bright streaks, and as there were two separate patches, divided by a clear channel, it could not be attributed to any discoloration caused by whales, nor could it be schools of fish, as the approach of the steamer would frighten them away. Although the sea was fairly rough, it did not break, showing that there must be 30 or 40 feet of water over the shoal, but I venture to say that in a storm, when the waves are 15 to 20 feet high, it would break. By consulting the chart, it will be seen that this part of the ocean is used but very little, and shoals, or even small low islands, might still exist there which are not now charted."

This observation of shoal water, as thus reported by Captain Lawless, indicating the possible existence of a shoal region, where reefs and islands might naturally occur, did much to revive and stimulate afresh the interest, not only of the Hydrographic Office, for its importance to navigators, but also of all persons who for any conceivable reason might in any way be concerned in the question of the existence of islands, reefs, or shoals in that part of the ocean.

Among such persons was one Capt. John De Greaves, then living at Honolulu, and there sometimes formerly known as the King's "scientific adviser," who, it was said, during many years prior thereto had constantly asserted his positive knowledge of such an island in that region referred to, claiming to have discovered and landed upon such island, and to have found deposits of guano thereon, in the summer of 1859, while on a voyage from the port of Honolulu, Hawaii, to the port of Callao, Peru. The memories of his visit having been apparently aroused by the announcement of Captain Lawless's observation, he gave a very full and minutely detailed narrative of his adventure to a local press reporter, who promptly sent the story to the New York Sunday *Herald*, in which paper it was published on May 4, 1902.

About this time certain incidental circumstances had led by chance to the revival of a very deep personal interest, which I had strongly felt during more than forty years, in the generally forgotten mysterious fate of the United States sloop-of-war *Levant*, which having sailed on September 18, 1860, from the port of Hilo, Hawaii, for the port of Panama, has never since been heard from by any trace whatever, unless it be in certain wreckage found on the south shore of Hawaii, in June, 1861, there and then identified by local authorities as wreckage from the *Levant*.

When I read in the *Herald* on May 4, 1902, that De Greaves had sailed from Hawaii for Callao in the summer of 1859, one year before the sailing of the *Levant* from practically the same point of departure, and, so far as sailing courses might be concerned, for the same destination, at the same time of

year, liable to similar conditions of season, weather, prevailing winds and currents, it seemed a reasonable supposition that the *Levant* might follow, in 1860, the leading vessel on her voyage of 1859 in substantially the same courses, as one arrow might follow another, shot from the same bow and aimed at the same target. According to De Greaves's story, when he was about a thousand miles east of Hawaii, or (see map) in longitude 136° and north latitude 17°, he discovered an island, about 50 to 70 feet high and two miles long, right ahead, about nine o'clock in the morning. If the *Levant* had reached substantially De Greaves's point of discovery in the night, it is more than probable she would have sailed in the darkness onto the island and made shipwreck there.

Although De Greaves's story, on careful inquiry and search of records, was presently found to have been largely, if not wholly, invented for the occasion,* nevertheless the possibility that the *Levant* might have been wrecked on some island, somewhere in her sailing track between Hilo and Panama, seemed most reasonable, especially in view of certain indications of the above-mentioned wreckage that the ship had not foundered in mid-ocean (as once determined by act of Congress), and had not been dismasted in a storm, but had been broken to pieces on rocks, and, further, in view of the much increased probability that such rocks, perhaps a low reef perhaps a habitable island, might be found in the neighborhood of Captain Lawless's recently discovered shoal.

I had the honor to bring the matter to the attention of President Roosevelt in June, 1903, and thereafter, upon presentation and consideration of the known facts at the Navy Department, the Secretary of the Navy, Hon. W. H. Moody, determined to send an expedition, as soon as one or more suitable vessels could be spared for the service, to finally settle the question of the existence or non-existence of any shoal, reef, or island in the doubtful region.*

This determination, as originally formed, contemplated the sending of one, or perhaps two, vessels suitably equipped for deep-sea sounding,† of large bunker capacity, carrying sufficient coal for a cruise long enough to traverse the entire field and overlook in daylight every square mile of the questionable area. No such vessel had yet been found available for the proposed work, when in May, 1904, the *Tacoma*, a newly built cruiser, was about to make a trial and practice voyage from the Bremerton Navy Yard to Honolulu and back to the Pacific coast. Although the *Tacoma's* coal-carrying capacity was too small to allow more than a few days' detour, it was thought expedient for her on the return voyage to visit the locality of Captain Lawless's reported observation and the assigned position of De Greaves's alleged discovery for such reconnaissance as might be feasible under existing conditions.

* Presumably to stimulate renewed interest in further search for guano islands.

* The late Rear Admiral H. C. Taylor, at that time Chief of the Bureau of Navigation, manifested a very strong interest in the proposed search, and he repeatedly expressed his earnest desire to see it conclusively accomplished.

† Deep-sea soundings, showing the depressions and elevations of the ocean bottom, may often give significant indications of submarine peaks, plateaus, or ridges, which, if followed up, may lead to the discovery of shoals or islands visible at the surface. The deep-sea soundings in the North Pacific, made some years ago by the U. S. ship *Tuscarora* while sounding for a cable line from San Francisco to Honolulu, under the command of Rear Admiral Erben, discovered a shoal region in which the depth of water suddenly changed from more than 2,200 to less than 400 fathoms and deepened again as suddenly, indicating the crossing of a submarine peak or ridge. This shoal region lies in 33° north and near 133° west, about 900 to 1,000 miles due north of the doubtful field here under consideration.

The *Tacoma* was not furnished with any deep-sea sounding apparatus, and her search in that regard was therefore only superficial.

In his report of the cruise of the *Tacoma*,* Commander R. F. Nicholson writes as follows:

"Leaving Honolulu on May 19, I proceeded to the latitude indicated and, upon the assumption that the latitude was nearly correct, and that the greatest errors in the reported position would be in longitude, commenced search on May 24 at longitude 138 west, where, upon an old map seen in Honolulu, an island is shown marked Eclipse. This is one degree to the westward of the position indicated by the department. We ran on that parallel to longitude 136° west, reaching the vicinity of the *Albatross's* search and soundings of 3,000 fathoms. The atmosphere was clear and the horizon well defined. From aloft any land could have been seen at least ten miles on either side of our track. At night the engines were stopped. I then proceeded to visit in order the reported positions of islands as given below and as are shown on the accompanying tracing of our track: Bunker's Island, lat. 15° 30′ N., long. 136° W., reported by Captain Bunker in 1823; Sultan's (American whaler), reported in lat. 15° 30′ N., long. 134° W., prior to 1827; Groupe, lat. 16° 30′ N., long. 134° 30′ W., authority of Krusenstern, from American whalers, reported prior to 1849; De Greaves, English resident of Hawaii, asserts having landed on an island (see map) in lat. about 17° 40′ N., long. about 135° 30′ W., whilst mate on the British bark *General Wool* in 1858; shoal (see map) reported by Captain Lawless in lat. 18° 56′ N., longitude 136° 10′ W., who says he saw discolored water, which he believed to be shoals, but did not stop his vessel, the *Australia*, to sound.

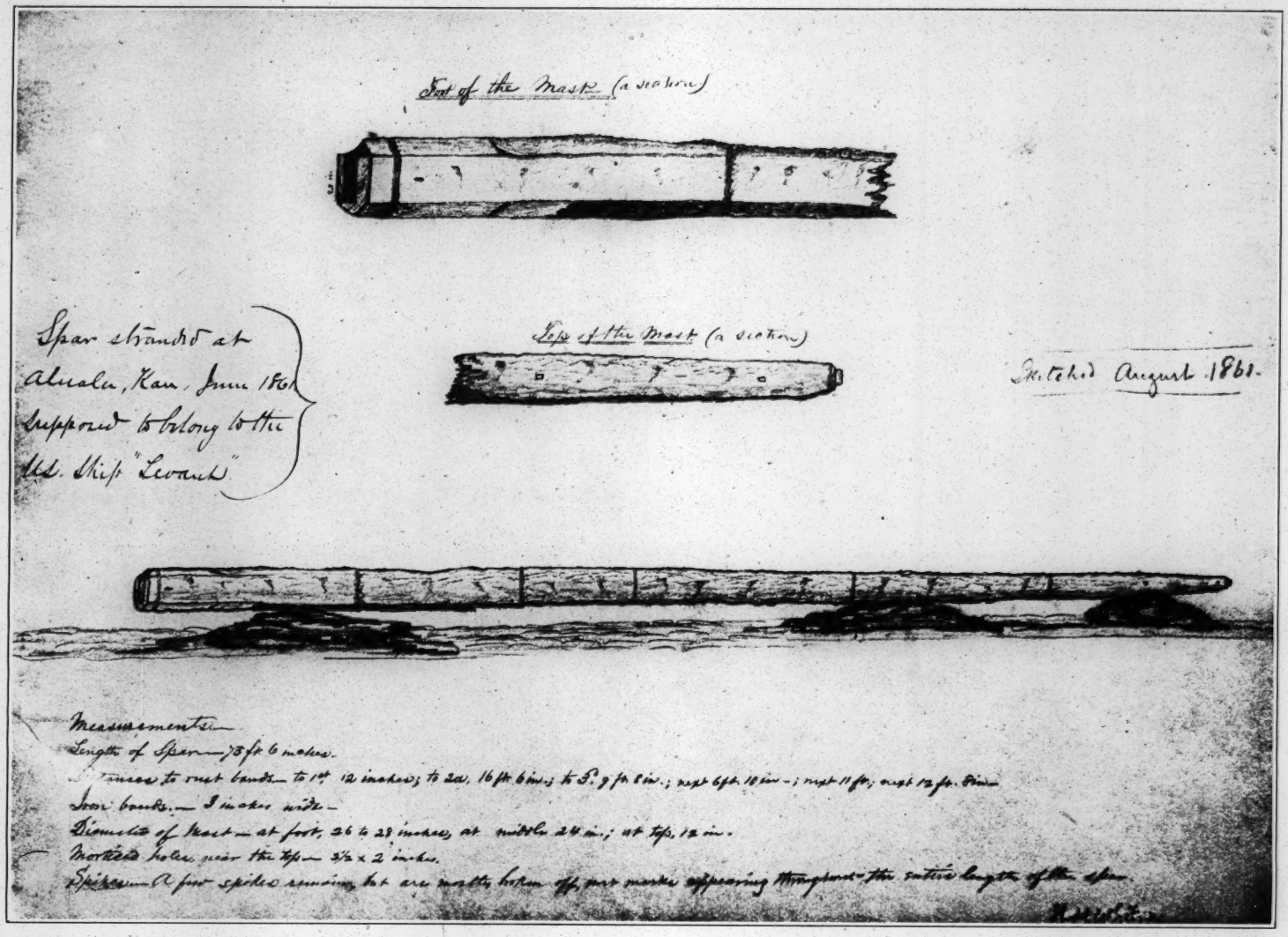
"Captain Lawless states that he was sure of his position within one mile of latitude and five minutes of longitude. I sounded in given position of Lawless's shoal and in its vicinity, getting no bottom at 280 fathoms. During the search, which lasted four days, neither land, shoals, nor signs of land were seen. In fact, the locality was remarkable for the total absence of birds."

The above-stated result of the *Tacoma's* search is absolutely conclusive as far as it concerns the ocean area actually seen from the track line of the ship. The total area thus examined is probably about one quarter to one-third of the questionable region, assuming that area, as hereinbefore stated, at about 30,000 to 40,000 square miles, whereof about 10,000 square miles have now been actually seen in searches made by the *Tacoma* and the *Albatross*.

The cruise of the *Tacoma* has therefore negatively and conclusively disposed of half a dozen or more reported islands as charted in certain defined positions, and it has definitively eliminated from further consideration of doubtful reports an area of about 10,000 square miles, leaving a still questionable region of twice or three times that area open to further search.

Reference to the map will show that this region, still unexplored and unvisited by any (excepting the *Albatross*) of the above-mentioned searching vessels, lies in latitude somewhere between 17° and 20° north and in longitude between the meridians of 133° 30′ and 136° west, an area of about 30,000 square miles or more, nearly equivalent, say, for example, to the area of the State of Maine. It is readily imaginable that such an island as the whalemen have reported may have been observed by them within this field, which lies wholly out of sight of vessels following the sailing tracks shown, further south, in the accompanying map, and it may be noted that this field of possibilities lies due east of

* By direction of the Secretary of the Navy I joined the *Tacoma* at Honolulu, for the purpose of participating personally in her exploration of the doubtful islands region and in seeking traces of the lost *Levant*, whose departure from the same port, on her fatal voyage, I had witnessed forty-four years before.


Foot of the Mast (a section)
Spar stranded at Alvala, Kau. June 1861 Supposed to belong to the Ud. Ship "Levant"
Top of the Mast (a section)
Sketched August 1861.
Measurements
Length of Spar 73 ft 6 inches.
Distances to rust bands — to 1st 12 inches; to 2d, 16 ft 6 in.; to 3d, 9 ft 8 in.; next 6 ft. 10 in.; next 11 ft.; next 12 ft. 9 in.
Iron bands — 3 inches wide.
Diameter of Mast — at foot, 26 & 29 inches, at middle 24 in.; at top, 12 in.
Mortised holes near the top — 3½ x 2 inches.
Spikes — A few spikes remain, but are nearly broken off, port marks appearing throughout the entire length of the spar.

Sketch of Mast of U. S. Sloop *Levant*. The Mast was washed ashore on one of the Hawaiian Islands

Lawless's shoal, reported in latitude 18° 56′ north, while the older charts all indicate islands in the neighborhood that have been reported long ago in latitudes little north of 20° and south of 17°.

There is another shred of circumstantial evidence indicating the existence of an island in this neighborhood. Some years ago, about 1889 (?), the ship *James Campbell* was abandoned near latitude 20° north and longitude 120° west, 800 miles from the coast to windward and 2,300 miles from Hawaii to leeward. Two boats left the ship, steering for Hilo, Hawaii. The larger and better boat, well adapted to sailing, contained the captain with his wife and girl baby and several sailors; the second boat carried five or six sailors. The captain's boat made sail, and at first towed the other boat, but after two or three days parted company, leaving her behind. After 23 days the second boat's crew reached Hilo, expecting to find the captain's boat already there. The weather had been favorable and the sea smooth, and nothing had occurred to account for the failure of the captain's boat to arrive. It has never been heard from. It is thought by some that the captain may have sighted and landed upon an island, where, if he found it habitable, he might have preferred to stay rather than take the risk of a further voyage in an open boat with wife and child.

The results of the *Tacoma's* search throw no light upon the mysterious fate of the *Levant*, unless the certainty that there is no island or reef where the cruiser has looked for one may, in view of all the now known facts, be regarded as an indication that there must be such an island or reef of rocks elsewhere on which the *Levant* was wrecked, since it now seems almost unquestionable that the *Levant* was broken to pieces on a reef or island somewhere in her sailing track between Hilo and Panama. It is now known from his official records that when the *Levant* sailed from Hilo her commander, William E. Hunt, intended to take the northern course, heading eastward toward the coast of California, rather than southward toward the equator, and thus probably traversing the very region in which the questionable island is supposed to be situated. Within nine months after her departure a drifting spar and a part of a lower yard were found on the Hawaiian shore 75 miles south of Hilo. This spar was examined and identified as the mainmast of the *Levant* by three witnesses, one of whom was the pilot who had taken the *Levant* in and out of the port of Hilo and who knew the dimensions of her spars.

It has been generally believed that the *Levant* capsized or foundered in some tidal wave or overwhelming sea; but in such case her mainmast would probably have gone to the bottom with the ship, whereas the mainmast found on the shore of Hawaii would seem to have been torn out of the vessel when broken to pieces on a reef. Certain sketches, copies of which are submitted herewith, carefully made shortly after the mast came ashore, show it to be 73 feet long, whole from heel to top, not broken off as it might have been if the ship had been dismasted in a storm at sea, but complete, showing in detail the framing of the mast at the heel or step, indicating that the ship from which it came had not foundered and had not been dismasted at sea, but must have been broken to pieces on a reef, and that the unbroken mast must thereafter have been detached and drifted away with the wreckage of the lower yard that was found at the same place on the south shore of Hawaii.*

*These sketches were made by Mr H. M. Whitney, of Honolulu, in August, 1861, a few weeks after the finding of the wreckage, which had then already been identified as the mainmast of the *Levant*, and so reported to the Navy Department, at Washington. Mr Whitney visited the place where the wreckage came ashore and made the sketches, by special request of

If the *Levant* was wrecked on a reef within the region here considered (or, indeed, much farther east) and thereafter broken to pieces in heavy surf, the prevailing westerly current might have carried her drifting wreckage in a few months' time to the south end of Hawaii, where the spar, identified as her mainmast, was found. This westerly current is usually very strong, with slight southerly variations. The *Tacoma*, lying to during the night, with engines stopped, drifted a mile per hour in a west-southwesterly direction. The drifting spar, if moving with a velocity of half a mile to a mile per hour, would travel from 300 to 700 miles per month. The *Levant* sailed from Hilo in September, 1860, and the drifting wreckage was found on the Hawaiian shore in June, 1861, nearly nine months thereafter.

If the *Levant*, sailing in the night with a smooth sea, struck upon the reef of an ordinary coral island, especially at high tide, her ship's company might possibly have landed without the loss of a single life, in which event there would have been many and still might be some survivors whose chances of living till now on a fairly habitable and healthful island might, perhaps, have been far more favorable than elsewhere, exposed as they would have been not only to the constant risks of life under existing conditions of modern civilization, but also to the hazards of war, which was their vocation and in which they would have been actively engaged a few months later if they had duly reached their destination at Panama.

In this connection I may venture to recall the interesting incident that Edward Everett Hale's Philip Nolan, "The Man without a Country," ended his romantic career on the *Levant* on this her last and fatal voyage, since in the author's imagination he must have been aboard when she last put out to sea from the port of Hilo. There may have been a whole ship's company of men, now without a country, cast away on this mysterious island about forty-four years ago, some of whom may be still watching for a sail.

This would be, indeed, a marvelous thing, but it is not beyond the range of possibility. The mutineers of the *Bounty* lived on Pitcairn Island 18 years before they were found there, and the extreme and solitary isolation of this supposed land would fully account for the long undiscovered seclusion of the castaways. If there be an island in this uttermost part of the sea, and if, sooner or later, it should be found with survivors of the *Levant*, its story might well be thought the strangest sea romance in the history of the world. The venerable author of "The Man without a Country" has manifested a very keen interest in all that pertains to the recent search for the *Levant* and in the efforts to solve the mystery of her fate.

On my return to San Francisco after the cruise of the *Tacoma* I received a note of welcome from Dr Hale, which he had sent to await my coming. He wrote, "If you have found dear Phil Nolan bring him at once to this house; I will adopt him as my grandfather."

interested parties, in order to preserve recorded evidence of the dimensions and descriptive details of the spar. The sketches were laid aside shortly after and were never brought to light again until my recent visit to Honolulu, more than forty years thereafter, in search of the desired information, when Mr Whitney found and placed them at my disposal.

Recent inquiry shows that the *Levant's* lower masts were put into the ship at the Boston navy yard, in 1858; but no record of that work has yet been found there, which affords any information for comparison of dimensions or details, which might serve to identify the mast found at Hawaii or confirm its supposed relation to the *Levant*.

THE UNITED STATES GOVERNMENT TELEGRAPH AND CABLE LINES

SOME very notable achievements are enumerated in the report for 1904 of General A. W. Greely, Chief Signal Officer, U. S. A. A wireless telegraph system has been established between Cape Nome and Fort St Michael, which in an afternoon easily transmits 5,000 words across the 107 miles of water. The apparatus was invented entirely by the Signal Corps engineers. A cable of 596 miles, of American make, has been laid between Sitka and Valdes. During the year 55,559 messages were transmitted on the government lines, of which 31,020 were commercial and 26,539 official messages. The revenue of the lines is increasing very rapidly. Of the Alaskan system General Greely says in his report:

"The undertaking is unique in the annals of telegraphic engineering, whether one considers the immense extent of territory, its remoteness from the United States, the winter inaccessibility of the regions, the severity of the climate, the uninhabited and trackless districts, or the adverse physical conditions. If plotted on a map of the United States this system would reach from Wyoming to the Bahamas, off the coast of Florida. The cables used would reach from Newfoundland to Ireland, and the land lines from Washington to Texas.

"Its totality also comprises elements not elsewhere combined in a single system—submarine, land, and wireless methods, all worked as one component and harmonious system. The entire construction of 3,625 miles includes not only 2,079 miles of cable and 1,546 miles of land lines, but also a wireless system of 107 miles.

"The United States has brought southeastern Alaska, the Yukon Valley, and the Bering Straits region into telegraphic communication with the rest of the civilized world. There yet lacks, to complete the dream of a half century since of telegraphically uniting America and Asia via Bering Straits, a cable to the Asiatic shore and a Russian land line of about 1,500 miles to Nikolaevisk.

"The Signal Corps wireless station at Nome could communicate with a similar station on the Kamchatka coast, but the infertile and sparsely inhabited country thence to the nearest Russian station of Nikolaevisk renders any such enterprise unlikely.

"It is important to note that the completion of the Alaskan lines perfects the military intercommunicating system of the United States. The President or the Secretary of War can now reach, over strictly American lines of telegraph and cable, every important military command from the icy waters of Bering Strait to the tropical seas of the Sulu Archipelago, with the exception of the legation guard at Pekin.

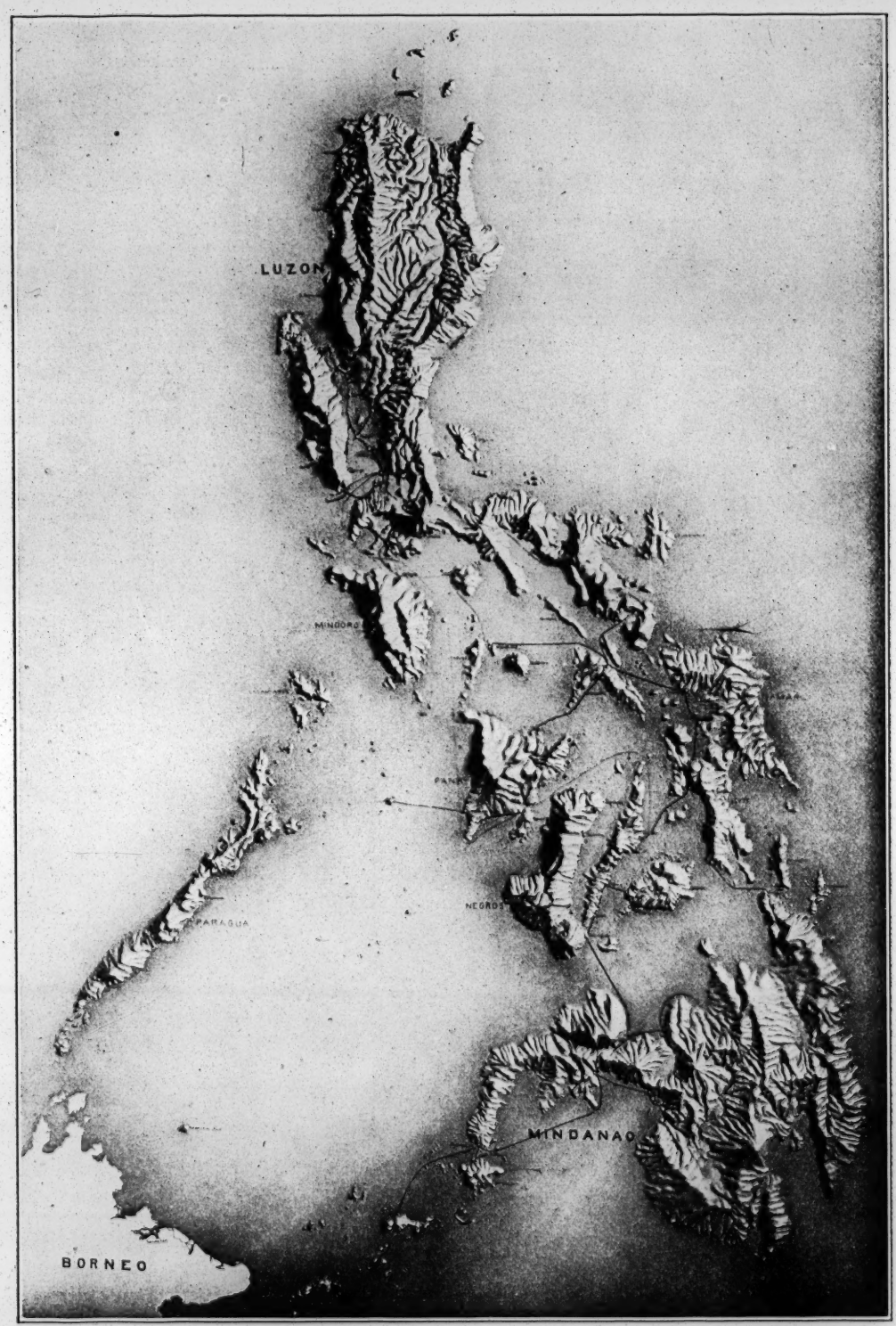
"The Alaskan cables were manufactured in the United States, and are the first American-made cables to be used on a long line.

"The seamless rubber cable between Sitka and Seattle, 1,070 miles in length and laid in an average depth of 1,000 fathoms and in an extreme depth of 1,700 fathoms, in addition to being less expensive in its original cost, has a transmitting power greater by 25 per cent than was mathematically calculated on the basis of trans-Atlantic gutta-percha cables.

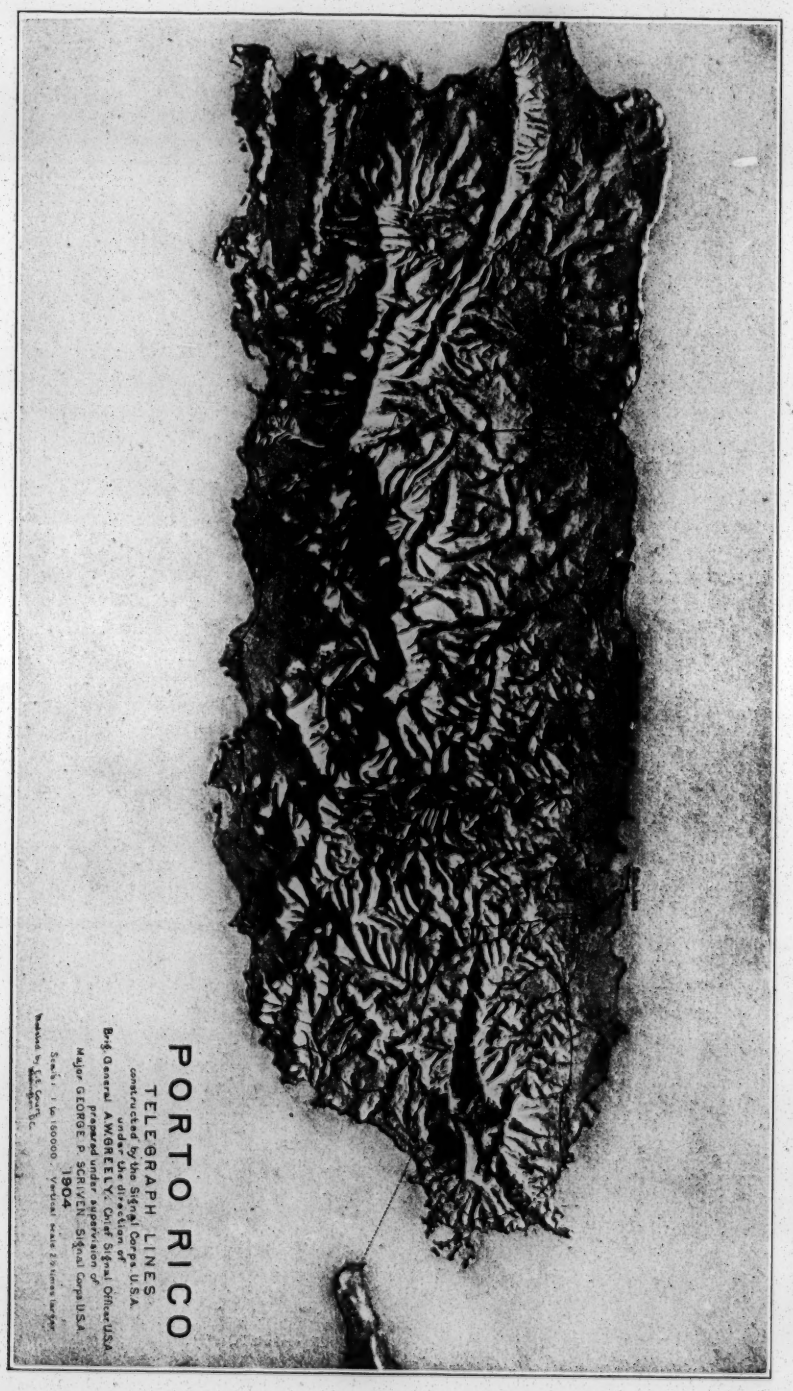
"The cable system of southeastern Alaska, 413 miles in length, was operated without interruption during the entire fiscal year, and a similar absence from interruptions has marked the extension of 1,070 miles to Seattle.

XUM

ALASKA
TELEGRAPH AND CABLE LINES
constructed by the Signal Corps U.S.A.
under the direction of
Brig General A.W. GREELY, Chief Signal Officer U.S.A.
prepared under supervision of
Major GEORGE P. SCRIVEN, Signal Corps U.S.A.
1904
SIBERIA
BRITISH
COLUMBIA
GULF OF ALASKA



Relief Map of the Philippine Islands, constructed by the U. S. Signal Corps, under the direction of General A. W. Greely


PORTO RICO
TELEGRAPH LINES
constructed by the Signal Corps U.S.A.
under the direction of
Brig. General A.W. GREELY, Chief Signal Officer U.S.A.
prepared under supervision of
Major GEORGE P. SCRIVEN, Signal Corps U.S.A.
1904

"The land system of 1,497 miles was scarcely completed in June, 1903, when extensive forest fires in the valley of the Tanana, ranging for a distance of 250 miles along the line, destroyed various portions, aggregating 100 miles in length. By arduous effort this line was rebuilt and the system thrown open as a whole to the general public for commercial business before winter commenced. It has since been operated with unusual success, although interruptions here or there have been frequent, 206 breaks in all, due mostly to blizzards, forest fires, sleet storms, and high winds."

THE PHILIPPINE LINES

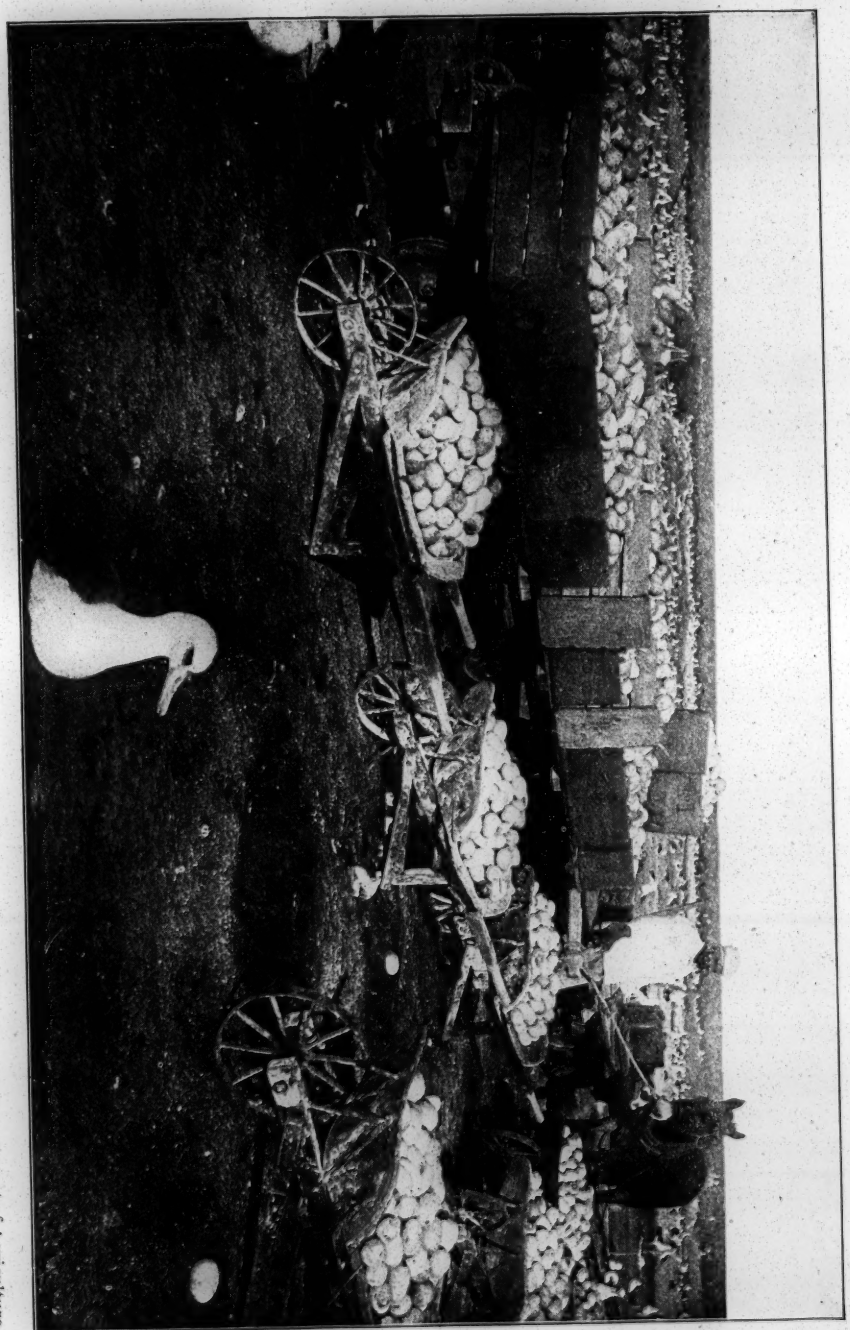
About 3,000 miles of the Philippine system has been transferred by the Signal Corps to the civil government, leaving 7,000 miles of cable and telegraph still in the hands of the Signal Corps. If the Signal Corps had charged for every telegram and telephone on the scale of the Eastern Extension Telegraph Company, the only telegraph company in the islands, it would have received nearly $8,000,000 in tolls. The total cost to the United States for the construction and operation of the 10,000 miles of lines in the Philippines has been less than one-third of this amount.

A BIRD CITY

AT the extreme end of the Hawaiian group there is a little island, about 3 miles long and 1½ miles wide, where one of the most remarkable sights in the world is to be seen. Hundreds of thousands of birds make it their breeding place. The birds have divided the island into lots and squares, as the surveyor divides the city into lots, and each lot is reserved for a particular species of bird. Mr Walter K. Fisher, of the Bureau of Fisheries, who in 1902 spent a week on this island (Laysan Island), has recently published the official story of his visit there.* Perhaps the most interesting bird is the beautiful white-breasted albatross. The bird is friendly. "It might perhaps be difficult to convey," says Mr Fisher, "the pleasure I experienced when, standing in a group of albatrosses, one came up and peered into my face, and, finding my intentions good, proceeded to examine inquisitively the top of my tripod. Many of the young albatrosses would allow themselves to be stroked after a ludicrous show of displeasure, and would soon appear as if they had known us always."

The albatross is fond of dancing. "Two albatrosses approach each other, bowing profoundly and stepping rather heavily. They circle around each other, nodding solemnly all the time (see picture 1). Next they fence a little, crossing bills and whetting them together, pecking meanwhile, and dropping stiff little bows. Suddenly one lifts its closed wing and nibbles at the feathers underneath, or, if in a hurry, merely turns its head and tucks its bill under its wing (see picture 2). The other bird during this short performance assumes a statuesque pose and either looks mechanically from side to side or snaps its bill loudly a few times. Then the first bird bows once, and, pointing its head and beak straight upward, rises on its toes, puffs out its breast, and utters a prolonged nasal groan, the other bird snapping its bill loudly and rapidly at the same time (see picture 4).

* "Birds of Laysan Island, H. I.," by W. K. Fisher, Bureau of Fisheries, 1904.



From T. S. Palmer, Department of Agriculture

Collecting Albatross Eggs on Laysan Island, Hawaiian Islands

From T. S. Palmer, Department of Agriculture

Albatrosses on Laysan Island, Hawaiian Islands

PICTURE 1.—First Steps in Favorite Dance and "Song" of the Albatross, *Diomedea immutabilis*

Photos from Walter K. Fisher, Bureau of Fisheries.

PICTURE 2.—Second Step in the Albatross Dance.

PICTURE 3.—Finale of Dance—the Duet.

PICTURE 4.—More Common Ending of Dance—One "Singing," the Other Snapping Beak.

"Sometimes both birds raise their head in air, and either one or both utter the indescribable and ridiculous bovine groan (see picture 3). When they have finished, they begin bowing at each other again, almost always rapidly alternately, and presently repeat the performance, the birds reversing their rôle in the game or not. There is no hard and fast order to these antics, which the seamen of the *Albatross* rather aptly called a 'cake-walk,' but many variations occur.

"Occasionally one will lightly pick up a twig or grass straw and present it to the other. This one does not accept the gift, however, but thereupon returns the compliment, when straws are promptly dropped, and all hands begin bowing and walking about as if their lives depended upon it. If one stands where albatrosses are reasonably abundant, he can see as many as twenty couples hard at work bowing and groaning on all sides and paying not the slightest attention to his presence."

In spite of this excellent use of all the space at their disposal, the birds which have chosen Laysan for their breeding home would not be able to find satisfactory places if they all arrived at the same time. They are, therefore, obliged to take turns, so that some species of sea birds leave the place as soon as their young are strong enough to fly, and while the former occupant is leaving, the new-comers already begin to arrive. Thus there is a constant coming and going, and it follows that breeding species are found at almost every season of the year—a fact which is remarkable even in the tropics, where the breeding season is generally less regular than in our latitudes. In this way a most definite succession, which probably dates back thousands of years, takes place year after year in the arrival and departure of certain species.

A commercial company makes a good profit out of the phosphate deposits on the island. At one time it also made money out of the albatross eggs (see picture, page 495), but this wanton practice has since been stopped.

Sulphur Mine in Nevada.—The amount of sulphur produced in the United States is but a small percentage of the amount annually consumed. Three states, Louisiana, Nevada, and Utah, named in the order of their importance as producers of sulphur, contribute to the domestic output. Their united production for 1902 was 8,336 short tons, valued at $220,560. In addition to this, the country consumed 174,939 long tons of imported sulphur, principally from Sicily. But for the unfortunate fact that there is no duty on imported sulphur, the production from native deposits might be expected to increase in proportion to the demand. Mr George I. Adams has written for a recent bulletin (No. 225) of the U. S. Geological Survey, entitled "Contributions to Economic Geology, 1903," a capital description of the Rabbit Hole sulphur mines of Nevada. It is thought that the sulphur at these mines was derived from a great depth and deposited as a result of solfataric action.

The sulphur is obtained from open pits, tunnels, and underground chambers. In its more beautiful form it occurs as masses of crystals depending from the walls of irregular cavities and incrusting free surfaces. It has the beautiful yellow color of crystallized sulphur, with here and there a reddish tinge due to the presence of a small amount of cinnabar. The most important mass of sulphur is, however, of a different type, and has the appearance of having originated in a flow of molten sulphur which welled up and filled open channels in the rocks. It contains occasional fragments of rocks, but is remarkably pure. Its color is a dark resinous yellow.

GEOGRAPHIC NOTES

A FOSSIL EGG

IN the *American Journal of Science* for November there is an article upon one of the most interesting events in the world—the discovery of a fossil egg with its contents practically intact but converted into bitumen—a veritable romance of reality, which even the technical language of the scientific expert can not rob of interest. Oh for the pen of a ready writer! What a fascinating story, yet absolutely true, could be hatched out of that egg!

A prospector, examining the stones in the Gila River in Arizona, came upon a water-worn pebble 4 or 5 inches in diameter. He cracked off a fragment with his pick and discovered a fossil egg inside. The specimen fell into the hands of a gentleman in California who has now brought it to the attention of scientific experts. He has loaned it for examination to the California University, and the November number of the *American Journal of Science* contains photographs of it and a technical account of the result of the examination. The chief point of interest from a scientific point of view is the fact that the contents of the egg have been converted into a bituminous substance resembling asphalt, thus supporting the hypothesis that bitumen is derived from animal remains.

The egg is quite large—as large as that of a duck or goose—and resembles most closely the egg of a cormorant. It is so perfectly preserved as to show that it must have been completely imbedded very shortly after it was laid in the substance that afterwards consolidated into limestone. Thus we have a snapshot photograph of an event that happened hundreds of thousands of years ago. A bird of the size of a cormorant or goose laid this precious egg, which by some mischance tumbled into the water, or at all events into the soft ooze of which limestone is formed, with sufficient force to become completely imbedded in the ooze and thus protected. For countless years this ooze continued to be formed on top, and at last the whole became consolidated into limestone. Then the limestone was lifted from its watery bed by volcanic or other action and became a portion of a mountain range. Then erosion began. Through the agencies of frost and rain, sunshine and cold, fragments of limestone were broken off, until at last the egg was reached, and the fragment containing it fell into one of the gullies that feed the Gila River. There, in flood time, it was rolled over and over, amid a multitude of other stones, small and large, until all its angles were rubbed off and it became a water-worn pebble in a mountain stream, moving ever downward when the floods came in sufficient volume to stir it from its resting place, and then a prospector, searching for gold or other mineral, found it and cracked it with his geologic pick, exposing one end of the egg. What a wonderful history! But still more wonderful is the thought of the thousands and thousands of years that must have elapsed between the day when the egg fell into the water and became imbedded and the day when it next met the light, as a fossil, in the hands of a man.

WEALTH OF ALASKA

THE resources of Alaska are continually surprising the world as the exploration of the territory proceeds. A geologist of the U. S. Geological Survey, Mr A. J. Collier, who spent the past summer examining the coal deposits of the Arctic coast of Alaska, near Cape Lisburne, reports that they are much thicker, more numerous and extensive than has been generally supposed. Of the two coal-bearing formations the Mesozoic, which has been

known for the last three-quarters of a century, commences at a point 25 miles east of Cape Lisburne, and is continuously exposed along the coast to Cape Beaufort, a distance of 40 miles. It contains the well-known Corwin and Thetis mines, the location of which has been shown on many recent maps of Alaska.

Geologic study shows that the Coal Measures of these fields have a total thickness of at least 15,000 feet and contain not less than 40 beds of coal, each over a foot thick. The aggregate thickness of all the beds seen by Mr Collier is over 150 feet. Eleven of them are more than 4 feet thick and contain coal of good quality. Analysis of samples from some of the beds shows the product to be low-grade bituminous coal. A limited amount of coal has been mined here since 1879 for whalers and revenue cutters. Several cargoes were mined in 1901 and sold at Nome markets for $18 and $20 a ton, in competition with Comax and Washington coal at $25 a ton.

None of the coal beds have been permanently developed. The coal produced was mined from the croppings along the sea cliff and boated off to the ships through the surf. There is no harbor for vessels nor protection from any but south winds. In 1903 a small amount of coal, probably not exceeding 20 or 30 tons, was produced at the Corwin mine. In 1904 about 20 tons were taken by the steamship *Corwin*, and about 10 more tons were mined for consumption at the Point Hope whaling station.

The second coal-bearing formation, the Paleozoic, is also quite extensive and is south of Cape Lisburne. Beds over 4 feet in thickness occur. No analysis of this coal has yet been made. They are bituminous and of considerably better grade than the Mesozoic coals of the region. They are totally undeveloped.

NOTICE

MEMBERS of the National Geographic Society who possess copies of the NATIONAL GEOGRAPHIC MAGAZINE for January, March, April, and October of this year (1904) and are willing to dispose of them will confer a favor by sending the copies to the offices of the Society, Hubbard Memorial Hall. Twenty cents will be paid for each copy returned in good condition.

Chart of the World.—The NATIONAL GEOGRAPHIC MAGAZINE in the January number, which begins a new volume, will publish a chart of the world showing all submarine cable systems and connections and also the steamship routes of the world. The chart is in four colors and is 25 by 45 inches. It was prepared by the Naval Hydrographic Office and will be republished by the NATIONAL GEOGRAPHIC MAGAZINE through the courtesy of that office.

John B. Hatcher, of the Carnegie Museum, Pittsburg, and the organizer and leader of several expeditions to Patagonia, died in July, 1904. Mr Hatcher was only 42, which makes his death all the more deplorable. He was a member of the National Geographic Society and author of several papers on his work in Patagonia, published in the NATIONAL GEOGRAPHIC MAGAZINE and in *The American Journal of Science*.

A review of the laws forbidding the pollution of inland waters in the United States, which may be of great practical benefit to the public, has been prepared by Mr Edwin B. Goodell for the U. S. Geological Survey. It is published as No. 103 of the series of Water-Supply and Irrigation papers, and may be obtained by application to the Survey.

The article on "China," by Hon. John W. Foster, published in this number, is the first of a series of papers to appear in the NATIONAL GEOGRAPHIC MAGAZINE on the subject of the Far East.

DECISIONS OF U. S. BOARD ON GEOGRAPHIC NAMES.

Approved October 5, 1904.

American; stream, tributary to Bumping River, Yakima County, Washington (not American River, Miners Creek, Miner, nor Miners).

Beer; kill, town of Wawarsing, Ulster County, New York (not Good Beer nor Beer Kill).

Carmans; river and creek in the town of Brookhaven, Suffolk County, New York (not Connecticut, Carman's, nor Connectiquot River).

Coecles; arm of Gardiners Bay, Shelter Island, Suffolk County, New York (not Coecle Harbor Inlet, Coecle's Harbor Inlet, Coeclis Inlet, nor Cockles Harbor).

Gabilan; mountain range and peak between Monterey and San Benito counties and creek in Monterey County, California (not Gavilan nor Fremont).

Heady; creek forming boundary between Southampton village and the Shinnecock Indian Reservation, Suffolk County, New York (not Header).

Jennings; the northwest point of Shelter Island, Suffolk County, New York (not Rocky nor Stearns).

Ketch; brook tributary to Scantic River, Hartford and Tolland Counties, Connecticut (not Catch).

Leelanau; county in Michigan (not Leelanaw).

Northwest; harbor, town of Easthampton, Suffolk County, New York (not West, Northwest Harbor, nor Northwest Bend).

Peekamoose; mountain in the town of Denning, Ulster County, New York (not Peak o' Moose, Peakamoose, nor Peek O'Moose).

Picacho; peak, San Diego County, California (not Chimney).

Robins; island in Suffolk County, New York (not Robin's nor Robbins).

Sebonac; neck in town of Southampton, Suffolk County, New York (not Sebonack nor Seponack).

November 2, 1904.

Anthony; ponds (chain of three) tributary to Long Lake near foot, Hamilton County, New York (not S. Anthony nor St. Anthony).

Bernard; township in Somerset County, New Jersey (not Bernards).

Big Bay de Noc; bay, Delta County, Michigan (not Bay d' Enoc, Bay de Noq, Bay de Noque, Bay des Noquet, Bay des Noquets, Bay de Nocquet, Bay de Noquette, nor Bay d' Enoquet).

Casadepaga; river on Seward Peninsula, Alaska (not Koksuktapaga nor Casa-de-paga).

Corner; pond between Long Lake and Catlin Lake, Long Lake township, Hamilton County, New York (not Belden).

Dearing; post-office and railroad station, Montgomery County, Kansas (not Deering).

Dille; bottom and railroad station, Belmont County, Ohio (opposite Moundsville, West Virginia) (not Dillies, Dilly's, nor Dillon's).

Dilles Bottom; post-office, Belmont County, Ohio (not Dille, Dille's, nor Dilly's).

Dix; river, Kentucky (Rockcastle, Lincoln, Garrard, Boyle, and Mercer Counties) (not Dick, Dyck's, Dicks, nor Dick's).

Forge; river in the town of Brookhaven, Suffolk County, Long Island, New York (not Mastic).

Harpursville; village, post-office, and railroad station in Coleville, Broome County, New York (not Harpurville nor Harpersville).

Jenkins; pond or lake, Altamont town, Franklin County, New York (not Lake Madeleine).

Junction; post-office and railroad station, Boyle County, Kentucky (not Junction City).

Laferty; post-office and railroad station, Belmont County, Ohio (not Lafferty).

Little Bay de Noc; bay, Delta County, Michigan (not Bay d'Enoc, Bay de Noq, Bay de Noque, Bay des Noquet, Bay des Noquets, Bay de Nocquet, Bay de Noquette, nor Bay d' Enoquet).

Little Simon; pond or lake, town of Altamont, Franklin County, New York (not Lake Willbert nor Little Simons).

Long; pond, tributary to Jenkins Pond, town of Altamont, Franklin County, New York (not Heaven nor Heavens).

McMahon; creek, Belmont County, Ohio, tributary from the west to the Ohio at Bellaire (not McMahans, McMahan's, McMahon's, nor M'Mahon's).

Mashomack; southeast point of Shelter Island, Suffolk County, New York (not Mashomuck, Meshomac, nor Meshomuck).

Mattituck; pond in Southold, Suffolk County, Long Island, New York (not Maratooker, Marratooka, nor Mameweta).

Mulhockaway; creek in Union township, Hunterdon County, New Jersey (not Mullackaway nor Big Brook).

Pickwacket; pond in Long Lake township, between Long Lake and Catlin Lake, Hamilton County, New York (not Pickwocket nor Pigwaket).

Port Murray; post-office and railroad station, Warren County, New Jersey (not Port Murry).

Shelby; post-office and railroad station, Boyle County, Kentucky (not Shelby City).

Sparta; mountains, Sparta and Byram townships, Sussex County, New Jersey (not Wallkill).

Steel; post-office, Steele District, Wood County, West Virginia (not Steele).

GEOGRAPHIC CONGRESS ABSTRACTS

THE TOWER OF PELÉE

BY PROF. ANGELO HEILPRIN

The speaker detailed the general features of this remarkable structure, supplementing his observations with photographic views taken by him on June 13, 1903, from the crater-rim. At that time the giant obelisk rose out from the new crateral summit (the "cone" or "dome") to a height of about 840 feet. The speaker dissented from the generally accepted view that this Tower represented a rapidly cooling lava, whose solidification was effected at the time of extrusion, and expressed his belief that in all probability it was an ancient volcanic core, which had been dislodged and lifted out as the result of Pelée's forceful activity. Many facts connected with the structure of the Tower, as well as its general cork-like aspect, supported this conclusion.

THE SCULPTURE OF MASSIVE ROCKS

BY G. K. GILBERT

The general principle that rock partings facilitate erosion is sufficiently familiar, but the correlative principle that massive rocks are peculiarly resistant has received less attention. The granite districts of the Sierra Nevada afford exceptional opportunities for the study of the control of sculpture by phenomena of continuity and discontinuity, because rock of uniform composition and texture is in some places massive and elsewhere jointed. In the massive condition it is comparatively resistant to all forms of atmosphere, aqueous and glacial attack, except abrasion.

GORGES AND WATERFALLS OF CENTRAL NEW YORK

BY PROFESSOR R. S. TARR, CORNELL UNIVERSITY, NEW YORK

Near head of Cayuga and Seneca lakes, two of the Finger lakes of central New York, there are numerous gorges and waterfalls, of which Watkins Glen is the most widely known. The paper describe some of these gorges and falls, showing that their abundance depends upon the presence of a series of hanging valleys, tributary to the main valleys, which are occupied by Lakes Cayuga and Seneca. In descending from these hanging valleys the streams have cut gorges in the Devonian shales, in which are numerous falls, especially where the water passes from stronger to weaker layers. The influence of joint planes and of a series of older drift-filled gorges upon the outline of the gorge walls and the waterfalls was described.

MOTHER MAPS OF THE UNITED STATES

BY HENRY GANNETT

This is a revision of an article published by me under the same title in the NATIONAL GEOGRAPHIC MAGAZINE in March, 1892, bringing the subject up to the present date. It is a summary of the sources of geographic information concerning the main body of the United States; characterizing the work of the U. S. Geological Survey, Coast and Geodetic Survey, Land Office, and other geographic organizations; showing the extent and relative value of their contributions, and rating them in accordance with the scale for which they are fitted.

SCHOOL GEOGRAPHY IN THE UNITED STATES

BY MARTHA KRUG GENTHE

School geography at present represents the larger part of the geographic work done in the United States. This is partly so because at the elementary school the choice of studies does not depend upon the student, as in the higher institutions, partly because under the name of geography a great many kindred subjects are taught, especially in the lower classes. A more definite separation between these subjects and geography proper seems desirable.

The progress of teaching in the last years has brought about a more and more pronounced tendency to replace mere text-book information by oral instruction, and this requires a higher standard of preparation of the teacher.

A most important aid to develop the power of reasoning and of observation in the child are the practical exercises indoors and outdoors, representing the application beyond the kindergarten stage of the principles of Fröbel and his school. The numerous illustrations in the text-books serve the same purpose. Care must be taken, however, not to overdo in this line.

The multitude of geographical subjects is greatly simplified by reducing the instruction to a study of typical forms. The type idea must be presented to the child after, not before, the study of the individual objects.

Map-making, and consequently map study, are the lines along which much improvement is still desirable. In view of the facilities

offered by the government, better results than those hitherto produced should be expected.

THE RELATIONS OF COMMERCE TO GEOGRAPHY

BY O. P. AUSTIN

The relations of commerce and geography have always been close and important. The earliest knowledge of geography was the result of explorations made in the interest of commerce, and this continued the case for many centuries. The commercial enterprises of the Phœnicians gave the earliest recorded geographical knowledge regarding the countries fronting upon the Mediterranean, and commercial explorations along the west of Europe and Africa contributed further geographical information. This was also true of the commercial explorations of the Greeks., while the contributions to geographical information by the Romans were divided between their military and commercial conquests. Commerce was also the moving cause in the work of the Venetians, who thus contributed much information regarding the geography of the then known world It was commercial enterprise, the search for a route to India, which led to the discovery of America and the route to the Orient and Southern Africa. Later the great commercial companies which developed trade with America, India, and the Orient in turn gave to the world much definite and valuable geographical information. While in later years geographic research has been largely made in the interests of geography as a science, it has always been accompanied by an expansion of commerce. Thus commerce and geographical knowledge have always been coöperative, and to a great degree interdependent, and this must be the relation of commerce and geography during the twentieth century. The section of the world in which they will be specifically called upon to operate and coöperate is that which is generally known as "the tropics." The area lying between the thirtieth parallels of north and south latitudes contains one-half of the land area of the world and half its population; yet it now contributes but one-sixth of that which enters into international commerce The great commercial and geographical work of the twentieth century should and will be to make this great area contribute its proper share to the requirements of man—a task especially important in view of the rapidly increasing population of the world. Recent developments of science enable man to now overcome those natural obstacles which formerly prevented his subjugation of the tropics, and this naturally most productive section of the earth, the tropics, must now be peopled, developed, and required to supply its proper share of the requirements of the world's rapidly increasing population. Already the temperate zone has come to rely upon the tropics for many of its requirements for food and manufacture, and this reliance is rapidly increasing. The temperate-zone nations have within recent years assumed control of most of the tropical sections of the world, and will now apply their energy and scientific knowledge to the development of that part of the world. In this work geography and commerce must coöperate. The geographical information already in hand regarding the tropics will be required by commerce, and commerce in turn will supply to geographic science much information which it still lacks regarding this most important of the yet undeveloped sections of the world.

THE SUBMARINE GREAT CANYON OF THE HUDSON RIVER

BY J. W. SPENCER

In the channel of the Hudson River, seen on the continental shelf, Prof. J. D. Dana first recognized the evidence of a late continental elevation to 720 feet. In 1885 Prof A. Lindenkohl discovered that the channel at about 100 miles from New York was transformed into a canyon reaching a depth of 2,844 feet beneath sea-level, with an apparent barrier across it. In 1897 I pointed out that, although the evidence was scanty, the valley was traceable to 12,000 feet. I have now found the proof that at the apparent barrier is a narrow canyon, and 4 miles beyond and 31 from head of the gorge it reaches a depth of 4,800 feet, where the continental slope is submerged only 1,000 feet, making a narrow gorge with precipitous walls, having a depth of 3,800 feet At 48 miles from its head the valley is more than 2,000 feet deep, but at about 42 miles I place the location where the canyon form begins to pass into the valley stage, with a depth of between 6,000 and 7,000 feet below sea-level. The valley is further traceable to a depth of about 9,000 feet at 71 miles from the head of the canyon. In its gradient there are two known great steps, and, further, the slope is supposed in part to be by steps. The deep channel, at about 6,000 feet, of the Connecticut River is also discovered. In its upper part the Hudsonian canyon makes two right-angled turns in the floor of the continental shelf. The conclusions are that the region stood 9,000 feet higher in the earlier Pleistocene than now, followed by a subsidence below the present, then reëlevation to 250 feet, with subsequent minor changes. This canyon becomes proof of the evidences of great changes of level found in the Antillean region.

GEOGRAPHIC LITERATURE

Manchuria. Its People, Resources, and Recent History. By Alexander Hosie. Illustrated. Pp. 293. 6 by 9 inches. New York: Charles Scribner's Sons. 1904.

The present volume was published in England several years ago and now in revised form appears in America for the first time. It is the standard work on Manchuria, the author having been the British consul at Niuchwang from 1894 to 1897, and again in 1899 and 1900. Mr Hosie gives an excellent description of the country and especially of its agricultural wealth and possibilities.

The standard of education in Manchuria, from a Chinese point of view, is not of a very high order, and comparatively few literary honors have fallen to its inhabitants; this is largely due to the fact that the population in the country districts is sparsely scattered over a very large area, so that educational facilities are not yet so well organized as in China proper. The Manchus form only 10 per cent of the population. Intellectually the Manchu is no match for the Chinese, as he lacks the intelligence and capacity which are characteristic of the latter.

The domestic commerce of Manchuria is enormous. On the road from Mukden and Tie-ling to the north the author met thousands and thousands of carts loaded with merchandise.

"I have traveled in different parts of China, I have seen the great salt and piece-goods traffic between Ssu-ch'uan, Kwei-Chow, and Yunnan, but I never saw a sight which from its magnitude impressed me so much with the vast trade of China as the carrying trade from north to south in Manchuria. Until late in the afternoon, when, owing to a snowstorm, we had to abandon the possibility of making the city of K'ai-yuan Hsien that night, we met at least a thousand carts heavily laden with the produce of the interior, including beans, tobacco, abutilon hemp, dressed pigs, skins, and large droves of black pigs, all bound south. If we take the average team to have numbered five animals, we met some five thousand animals in one day. At one place, where a difficult gully had to be crossed, there was at least one mile of carts, three deep, waiting their turn to pass it. Numbers of men and boys were to be seen on the roads vying with each other in collecting the droppings of animals, which they scooped into wicker baskets. Much valuable manure is thus collected and utilized in the adjoining fields."

Probably not more than one-fifth of the whole arable land of Manchuria is at present under cultivation.

The present colonists are of themselves unable to cope with the land they have taken up, and labor is yearly imported from the northern provinces of China, especially Shan-tung and Chihli, to till, sow, and reap. From Chefoo alone more than twenty thousand Chinese laborers come to Niuchwang every spring by steamer and distribute themselves all over Manchuria and eastern Mongolia.

The most important cereal grown in Manchuria is the tall millet (Kao-liang), or *Holcus sorghum L.* It is the staple food of the population and the principal grain feed of the numerous animals engaged in the farmwork and in the immense carrying trade of the three provinces. The natives boil the millet for an hour into a soft, pulpy mass. "It is then scooped into bowls and eaten with boiled, fresh, or pickled vegetables, with the aid of chopsticks, just like rice. No salt or other seasoning is added to the millet while being boiled, and the taste is very insipid. An ordinary servant consumes two pounds of millet per day, while a hard-working man will, it is alleged, consume double that quantity.

It is found that a change of diet is occasionally required, and native flour, which is coarser and goes a much longer way than foreign flour, is from time to time taken as a substitute for millet. A Chinese friend of mine has five servants, and he supplies them monthly with 240 pounds of millet, 16 pounds of native flour—sufficient for two days—and on two days of the month with meat. The dates on which flour and meat are given are fixed, and the intervals between them are, as near as possible, equal. But the grains are not the only useful part of the tall millet; the stalks play a very important rôle in Manchuria. The outer leaf layers are woven into mats, which are so much required in the trade of the country for inclosing ricks and packing loads of grain and beans, and for fencing, bridging, and house-building, and where wood and coal are unobtainable or dear they are used for fuel. In spring, too, the roots are plowed up and collected for fuel. It is estimated that from 4,000 to 5,000 carts laden with bundles of millet stalks come into the port of Niuchwang every winter from a radius of 10 to 12 miles to supply a population of about 70,000."

Manchuria is an ideal wheat field, and both barley and wheat are grown in considerable quantities. They are sown in drills in March and harvested in June, wheat ripening ten days earlier than barley. Wheat especially is cultivated on both banks of the Sungari, within the Hei-lung-chaing and Kirin provinces, and is exported in junks to the Russian province of the Primorsk.

It is difficult to disassociate the cultivation of rice from a constant and abundant water supply, but in Manchuria rice is grown on dry land like other cereals, and, unlike them, the crop is not ruined by a superabundance of rain. As, however, it is twice the price of tall millet, the staple food of the people, it is not extensively grown. The cultivation of this dry-grown rice deserves the attention of countries like India, where a failure or deficiency of the rainfall means famine or dearth.

Mr Hosie devotes one chapter to an interesting account of the manufacture of bean-cake and bean oil and to the manufacture of salt from sea water.

By far the most important branch of the skin and fur trade of Manchuria consists of the skins of the domesticated animals—the dog and the goat. Many thousands of these skins are annually exported from Niuchwang and Tientsin, and ultimately find their way principally to the United States.

There are thousands of small dog and goat farms scattered over the northern districts of Manchuria and Mongolia, where from ten to hundreds of animals are reared yearly. When a girl is married she receives perhaps six dogs as her dowry, and it can easily be understood that this comparatively small beginning may be the foundation of a large fortune, seeing that the reproduction of ten per annum would in a few years give an enormous total. A dog matures in from six to eight months, and the fur is at its best during the winter; so that the animal must be destroyed before the thaw sets in. Nature has provided a magnificent protection to withstand the cold of these northern latitudes, where the thermometer (Fahrenheit) goes down to 25° below zero—*i. e.*, 57° of frost—and it is doubtful if the dog skins in any other part of the world are to be compared with those that come from Manchuria or Mongolia, either in size, length of hair, or quality. The question of food for so many animals naturally presents itself. If they had to be kept entirely by their masters, the industry could not be a paying one. The coarsest grain—millet that is not good enough for horses—mixed with the ordure and rubbish of the farm is always ready for them when by foraging outside they are unable to satisfy the pangs of hunger.

The minerals of Manchuria have not yet been scientifically explored, but gold, iron, coal, and soda are extensively worked, and silver, copper, and lead are known to exist. Gold is widely distributed throughout the three provinces of Manchuria, but the richest deposits are found in the far north, on the right bank of the Amur, the dividing line of Manchuria and Siberia.

BOOKS RECEIVED

Alaska. Reports of the Harriman Alaska Expedition. Edited by Dr C. Hart Merriam. Vol. v. Cryptogamic Botany. By J. Cardot, Clara E. Cummings, Alexander W. Evans, C. H. Peck, P. A. Saccardo, De Alton Saunders, I. Thérot, and William Trelease. Vol. viii. Insects. Part 1. By W. H. Ashmead, Nathan Banks, A. N. Caudell, O. F. Cook, Rolle P. Currie, Harrison G. Dyar, J. W. Folsom, O. Heidemann, Trevor Kincaid, Theo. Pergande, and E. A. Schwarz. Vol. ix. Insects. Part 2. By W. H. Ashmead, D. W. Coquillett, Trevor Kincaid, and Theo. Pergande. Vol. x. Crustaceans. By Mary J. Rathbun, Harriet Richardson, S. T. Holmes, and L. J. Cole. Vol. xi. Nemerteans. By Wesley R. Coe. Bryozoans. By Alice Robertson.

Italian Villas and Their Gardens. By Edith Wharton. Pp. 270. 10¾ x 7 inches. New York: Century Co. 1904. $6.00.

Dai Nippon. By Henry Dyer, C. E., M. A., D. Sc. Pp. 450. 9 x 5¾ inches. New York: Charles Scribner's Sons. 1904. $3.50.

Koreans at Home. By Constance Tayler. Pp. 80. 8½ x 6½ inches. New York: Cassell & Co. 1904.

Japanese Life in Town and Country. By George William Knox. Pp. 275. 7½ x 5 inches. New York: G. P. Putnam's Sons. 1904. $1.20.

ARTICLES FROM AUGUST MAGAZINES

Discovery of the Native Home of the San José Scale in Eastern China and the Importation of its Natural Enemy, C. L. Marlatt. Popular Science Monthly.

Italian and other Latin Immigrants, Dr. Allan McLaughlin. Do.

Lakes of New Zealand, Kieth Lucas. Do.

Irrigation of the Chentu Plateau, Archibald Little. Scottish Geographical Magazine.

Life and Travel in Persia, Miss E. Sykes. Do.

An Old Story of Arctic Exploration. Do.

Age of the Missouri River, Warren Upham. American Geologist.

German Antarctic Expedition, Dr. Erich von Drygalski. Geographical Journal.

Pioneer Journey in Angola, Capt. Boyd A. Cunningham. Do.

Queensland, Dr J. P. Thomson. Do.

French Explorations in Lake Chad Region. Do.

Reading Journey Through Japan; Kyoto (the Heart of Old Japan); from Kyoto to Kamakura; Tokyo; The Provinces; The Hokkaido and Back to Kobe; Southern Islands and Formosa, Anna C. Hartshorne. The Chautauquan.

Life Among Thibetan Savages, W. C. Jameson Reid. Outing.

An Ascent of Mt Baker, George C. Cantwell. Do.

Traffic on Great Lakes, Hugo Erichsen. World of Today.

Santo Domingo, Home of Revolution, Sigmund Krausz. Do.

Newfoundland and Its Fisherman, Day Allen Willey. Do.

Colossal Bridges of Utah, W. W. Dyar. Century.

What Do Animals Know? John Burroughs. Do.

Natnral Conditions Affecting the Building of the Panama Canal, H. L. Abbot. Engineering Magazine.

Maguey and the Preparation of Pulque. Modern Mexico.

The Campaign Against the Mosquito, John Bernhardt Smith. Booklovers.

Tramping Through Normandy, Alvin F. Sanborn. Do.

Two Pacifics, Harold Bolce. Do.

ARTICLES FROM SEPTEMBER MAGAZINES

Fossil Wonders of the West, H. F. Osborn. Century.

Japan's Highest Volcano, H. G. Ponting. Do

The Nelicatar of Arctic Alaska, Edw. A. McIlhenny. Do.

Hidden Egypt, Agnes Smith Lewis. Do.

Antarctic Experiences, C. E. Borchgrevink. Do.

Locusts of Natal, Mark F. Wilcox. Do.

The Chase of the Fin-Back Whale, Norman Duncan. Outing.

Tilling the "Tules" of California, A. I. Wells. Review of Reviews.

Western Uganda, Rev. A. B. Fisher. The Geographical Journal.

The Dutch in Java, Clive Day. The Scottish Geographical Magazine.

The Annual Rise and Fall of the Nile, Percival C. Waite. Do.

Imperial Valley of California, George Bellis. Forestry and Irrigation.

A Reading Journey in Belgium and Germany, Clare de Graffenried. Chautauquan.

The Story of the States, Hamilton Wright. Pearson's.

In the Big Dry Country, Frederic Ireland. Scribner's.

The Berbers of Morocco, Walter Harris. Do.

The Dark Caves of Rheims, Alice Hall. Booklovers.

Phases of Railroading in Japan. Harold Bolce. Do.

Some Plants which Entrap Insects, Forest Shreve. Popular Science Monthly.

Hebrew, Magyar, and Levantine Immigration, Allen McLaughlin. Do.

Calumet and Hecla, Theodore Waters. Everybody's.

The Beginnings of Civilization, W J McGee. The World Today.

ARTICLES FROM OCTOBER MAGAZINES

Inoculating the Ground, Gilbert H. Grosvenor. Century Magazine.

Climbing Canada's Highest Peak, James Outran. Outing.

The Cotton Pickers, Clifton Johnson. Do.

A Great Mexican Industry (Pulque), G. Gunyngham Terry. Booklovers.

The Colossal Cavern Do.

Charcoal Burning, Turner Morton. Pearsons.

On Mountains and Mankind, Douglas W. Freshfield. Popular Science Monthly.

Great Industries of the United States, Wm. R. Stewart. Cosmopolitan.

Reclaiming the Arid West, Alex. O. Brodie. Do.

The Big Stone Gap Coal-Field of Virginia and Kentucky. Engineering Magazine.

Return of the National Antarctic Expedition. The Geographical Journal.

A Journey to the North of the Argentine Republic, Florence O'Driscoll. Do.

Recent Discussions on the Scope and Educational Applications of Geography, A. T. Herbertson. Do.

The Underground Waters of Southern California, Walter C. Mendenhall. Forestry and Irrigation.

Mineral Resources of the State of Hidalgo, T. C. Graham, Modern Mexico.

ARTICLES FROM NOVEMBER MAGAZINES

Hanover, Hildesheim, Brunswick, Clara M. Stearns. Chautauquan.

The Evolution of the Horse in America, H. F. Osborn. Century.

The Methods of the Earth Sciences, Prof. T. C. Chamberlin. Popular Science Monthly.

To the Sahara by Automobile, Verner Z. Reed. Cosmopolitan.

Great Industries of the United States—V. The Manufacture of Silk, William R. Stewart. Cosmopolitan.

The New Galveston, C. Arthur Williams. World Today

Oaxaca's Mining Wealth, T. C. Graham. Modern Mexico.

Morocco, the Land of the Evening, Charles Wellington Furlong. Outlook.

A Buddhist Paradise in Korea, William Thorp. Independent.

The Actual Building of a Chinese Railway, Justin Burns. Engineering Magazine.

A Survey of the Mines and Mineral Industries of Italy, Enrico Bignami. Engineering Magazine.

Iowa's Campaign for Better Corn, Prof. P. G. Holden. Review of Reviews.

Western Canada in 1904, Agnes C. Laut. Do.

NATIONAL GEOGRAPHIC SOCIETY

THE POPULAR COURSE

THE addresses in this Course will be delivered in the National Rifles Armory, 920 G street, at 8 p. m. on Friday evenings. Mr Foster's address of November 25 is published in this number. Other addresses will appear in later numbers of the NATIONAL GEOGRAPHIC MAGAZINE.

December 9.—"Recent Observations on the Russo-Japanese War, in Japan and Manchuria." By Dr Louis Livingston Seaman. Illustrated.

January 6, 1905.—"Japan." By Baron Kentaro Kaneko, of the House of Peers of Japan, LL. D., Harvard, 1899.

January 20.—"Russia." By Hon. Charles Emory Smith, formerly Postmaster General and Minister to Russia.

February 3. — "The Philippines." The Secretary of War, Hon. Wm H. Taft, formerly Civil Governor of the Philippine Islands, has accepted the invitation of the Society to deliver the address on this subject, provided that the demands of public service do not interfere.

February 17. — "Manchuria and Korea." By Mr Edwin V. Morgan, U. S. Consul to Dalny. Illustrated.

March 10.—"The Panama Canal." Rear Admiral C. M. Chester, U. S. N., Superintendent of the Naval Observatory. Illustrated.

March 24.—"The Commercial Prize of the Orient and its Relation to the Commerce of the United States." By Hon. O. P. Austin, Chief of the Bureau of Statistics. Illustrated.

March 31. — "From Lexington to Yorktown." By Mr W. W. Ellsworth, of the Century Company. Illustrated.

April 14. — "Fighting the Boll Weevil." By Dr L. O. Howard, Chief of the Bureau of Entomology. Illustrated.

April 21.—"Niagara Falls." By Dr G. K. Gilbert, Vice President National Geographic Society. Illustrated.

SCIENTIFIC MEETINGS

The meetings of this course will be held at the new home of the Society, Hubbard Memorial Hall, Sixteenth and M streets, on Friday evenings, of the following dates.

December 2.—1. Geography of Alaska. By Dr Alfred H. Brooks of the U. S. Geological Survey.

2. The Alaskan Telegraph System. By General A. W. Greely, U. S. A., Chief Signal Officer.

3. The Salmon Fisheries of Alaska. By Dr Barton W. Evermann, of the Bureau of Fisheries.

4. Introducing Reindeer into Alaska from Siberia. By Dr William Hamilton, of the Bureau of Education.

December 16. — "A Geologist in China." By Mr Bailey Willis.

"A Naturalist in China." By Dr C. L. Marlatt.

"Some Remarks About Tibet and Chinese Turkestan." By Mr O. T. Crosby.

December 30.—General subject, "The Rocky Mountains." By Mr Robert H. Chapman, Mr W. H. Osgood, and Mr E. C. Barnard.

Thursday, January 12, 1905.—General subject, "The Reclamation Service." Mr F. H. Newell, Chief Engineer, and other engineers of the Reclamation Service, will describe the different irrigation works now being constructed.

January 13.—Annual meeting. Reports of officers and elections.

January 27.—General subject, "The American Deserts."

1. Vegetation. By Mr F. V. Coville, Botanist of the Department of Agriculture.

2. Physiography. By Dr G. K. Gilbert.

3. Introducing the Date Palm. By Mr W. T. Zwingle.

February 10.—General subject, "Progress in Animal Husbandry." There will be papers by Mr George M. Rommel, Mr G. Fayette Thompson, and others of the Department of Agriculture, on the work and plans of the Department for producing distinctive American breeds of Horses, on the Angora Goat, the Fat Tailed Sheep, the Barbadoes Woolless Sheep, on the introduction of the Bos indicus, etc.

February 24.—General subject, "The Botanical Investigations of the Department of Agriculture." By Mr F. V. Coville, Botanist, and members of his staff

March 3. — General subject, "Progress in Plant Physiology." Papers by Dr George T. Moore and others on "Inoculating the Ground," "Protecting Municipal Water Supply Systems," etc.

March 17.—General subject, "Japan."

The Geography of Japan. By Mr Eki Hioki, First Secretary of the Japanese Legation.

The Fisheries of Japan. By Dr Hugh M. Smith.

Agriculture in Japan. By Mr David G. Fairchild.

April 7.—General subject,

"Forestry."

Papers by Mr Gifford Pinchot, Mr Overton Price, and others, of the U. S. Bureau of Forestry, and a paper on Japanese Bamboos, by Mr David G. Fairchild.

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